4.6 TCM UPDATE

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Summary of Part Time HOV TCM Replacement

The purpose of this TCM replacement is to substitute a full time HOV Project on Route 60 in Moreno Valley with a Part Time HOV project. The conversion will be for a period of three years at which time it will revert to a full time HOV.

SCAG Review and Adoption. The replacement TCM will be presented to SCAG's Transportation and Communications Committee in the form of RTIP Amendment supported by emissions modeling and a conformity finding for its recommendation. The meetings will be publicly noticed. A 30-day public comment period and public hearing is included.

Interagency Consultation. Interagency Consultation is occurring at SCAG's publicly noticed Transportation Conformity Working Group meeting on November 28, 2006.

Equivalent Emission Reductions. The Part Time HOV Project virtually shows no significant difference in emissions from the Full Time HOV for ROG, NOX, CO and PM-10 as supported with emission model runs.

Similar Geographic Area. The replacement project in the City of Moreno Valley serves and provides accessibility in the same corridor as the original TCM.

Full Funding. The $35,000 replacement project will be funded with Minor State Cash.

Time Frame. The replacement project (the part time HOV) will be completed and in operation by June 2007.

Legal Authority. Caltrans has full legal authority to construct and operate the replacement project.

Implementation Commitment. The replacement project will be added to the RTIP through a formal amendment to be approved by SCAG's Regional Council.

AQMP- Consistency Methodology. The methodology for analyzing emissions used AQMP-consistent assumptions and modeling techniques.

Latest Planning Assumptions. Technical analysis of the replacement projects was based on EMFAC 2002 emission factors version V2.2. The emissions estimation is for the year 2007.

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Riverside County Transportation Control Measure Replacement

Presented to

Southern California Association of Governments

Submitted by

Caltrans District 8
464 West Street
San Bernardino, Ca. 92401-1400

November 16, 2006

Riverside County Transportation Control Measure Replacement

I Introduction

Caltrans plans to replace an existing Transportation Control Measure (TCM) with a new TCM project that provides equivalent or greater emissions reductions, while meeting all TCM substitution requirements specified in The Clean Air Act's section 176(c) transportation conformity provisions, including procedures to use in substituting or adding TCMs to approved SIPs.

The replacement will be discussed in this technical report:

> **SR-60 HOV.** On an eight-mile segment of State Route 60 (SR 60) East of Junction for SR 60/ I-215 to Redlands Blvd., convert the existing full-time (24 hrs) High Occupancy Vehicle (HOV) lane to a part-time HOV lane in both directions.

The following report presents the criteria for TCM replacement that apply to the SR-60 HOV lane TCM. Further the report includes a description of the TCM project to be replaced, the need for replacement, the implication of the replacement on the Regional Transportation Improvement Program (RTIP), and a description of the proposed replacement project. The technical analysis for the replacement presents emissions data for the original and replacement TCM.

II TCM Replacement Procedures and Requirements

Replacement of SR-60 HOV lane with a new TCM must follow the substitution protocol specified in the Clean Air Act's section 176(c).

The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users, signed into law on August 10, 2005, revised the Clean Air Act's section 176(c) transportation conformity provisions, including procedures to use in substituting or adding TCMs to approved SIPs. The Clean Air Act as amended requires that the replacement TCM have the following:

- 176(c)(8)(A)(i) The substitute measures achieve equivalent or greater emissions reductions than the control measure to be replaced;
- 176(c)(8)(A)(ii) The substitute control measures are implemented in accordance with a schedule that is consistent with the schedule provided for the control measures in the implementation plan;
- 176(c)(8)(A)(iii) the substitute and additional control measures are accompanied with evidence of adequate personnel and funding and authority under State or local law to implement, monitor, and enforce the control measures;
- 176(c)(8)(A)(iv)(I) The substitute and additional control measures were developed through a collaborative process that included participation by representatives of all affected jurisdictions (including local air pollution control agencies, the State air pollution control agency, and State and local transportation agencies);
- 176(c)(8)(A)(iv)(II) The substitute and additional control measures were developed through a collaborative process that included consultation with the Administrator;
- 176(c)(8)(A)(iv)(III) The substitute and additional control measures were developed through a collaborative process that included reasonable public notice and opportunity for comments; and
- 176(c)(8)(A)(v) The metropolitan planning organization, State air pollution control agency, and the Administrator concur with the equivalency of the substitute or additional control measures.

The AQMP specifies procedures for replacing individual projects such as the SR-60 HOV lane:

- The CTCs and/or project sponsors shall notify SCAG when a TCM project cannot be delivered or will be significantly delayed.

- SCAG, CTC or project sponsor can propose a substitute measure.

- Prior to adopting an individual TCM substitution, the measure must have been subject to interagency consultation (via the Transportation Conformity Working Group), public review and comment period and emissions analysis.

- The replacement measure must be subject to the SCAG Regional Council review and adoption.

- Upon adoption by the Regional Council, the new measure will replace the previous measure and will be incorporated into the RTIP through and administrative amendment.

- Adoption by SCAG's Regional Council will rescind the previous TCM and apply the new measures.

Section III of this report includes a summary of the SR-60 HOV lane replacement TCM fit with each of the requirements established by the AQMP.

III SR-60 HOV Lane TCM Replacement

SR-60 HOV Lane Description. The proposed project is a TCM replacement project and is substituting, an already built TCM, the existing full-time HOV lane. The existing project is an approved TCM in the SIP, which opened to traffic in March 2004 as a full-time HOV operation.

Need for SR-60 HOV Lane Project Replacement. The 2006 traffic study prepared by Caltrans indicates that the full-time HOV lane is under-utilized during the off-peak hours by 40% to 50%. The purpose of converting the existing full-time HOV lane to part-time HOV lane is to relieve the congestion, increase the travel speed, and improve overall safety by lowering the traffic densities during off-peak hours on the mixed flow lanes.

Implication of SR-60 HOV Lane Project Replacement for 2006 RTIP.
The SR60 HOV lane project was included in the 2002 RTIP as follows:

RCTC 46360	In Riverside and Moreno Valley On R60 from RT 215 to Redlands Blvd. Add 2 HOV lanes.

At the conclusion of the interagency consultation process, Caltrans will request that SCAG amend the 2006 RTIP to designate the part-time HOV project as a TCM.

The replacement project will also subsequently be included in annual TCM Timely Implementation Reports that SCAG submits to FHWA to demonstrate that the projects are being implemented on time in fulfillment of the AQMP TCM requirements.

Recommended SR-60 HOV Lane Replacement Project

Caltrans proposes to convert the existing full-time HOV lane to a part-time HOV lane in both directions on an eight-mile segment of SR-60, East of junction of SR-60/I-215 (R12.2) to Redlands Boulevard (PM 20.4). The conversion will be for a period of three years at which time it will revert back to a full-time HOV lane. The hours of HOV operation will be from 6 A.M. to 9 A.M. and 3 P.M. to 6 P.M. in both directions of SR-60. The HOV lane will be open to use by single occupant vehicles (SOV) for the remaining hours of the day. A striped buffer between the HOV lane and the mixed-flow lanes will remain unchanged, and no striping modifications are proposed. The SOVs will be able to enter/exit the HOV lanes only at the existing designated ingress and egress locations. New signs will be installed informing motorists about the hours of HOV operation. An aggressive public awareness campaign will be launched to spread the word about the proposed change in operation. Refer to figures 1 and 2 for the project vicinity and location map.

Technical Analysis

This technical analysis documents the evidence that the SR-60 HOV lane project replacement TCM meets the substitution criteria spelled out in the Clean Air Act's section 176(c): equivalent emissions, similar geographic service area, similar implementation schedule, and demonstrated financial commitment to complete the project on time. The modeling procedure identified below was used for the SR-60 HOV lane replacement modeling.

Methodology for Analyzing Original Project and Replacement. The SR-60 HOV lane TCM and the proposed SR-60 part-time TCM Replacement project are compared in terms of difference in emissions. The emission factors for vehicle type is based on EMFAC2002, Version V2.2 and the emissions estimation are for the year 2007.

Emission Analysis. Based on the results of the modeling described above, Table 1 compares the existing HOV Operation and the proposed replacement TCM project emission profiles for year 2007. The SCAG's findings after model runs are as follows: "*Results from the base model run (with existing HOV) and the alternative model run (with HOV conversion) were compared and analyzed. Overall the HOV conversion had very little effect on corridor level traffic volumes. There are some diversions of SOVs to the converted HOV lane, but the overall freeway volume showed little change. Also, there are no significant changes in the freeway or HOV speeds between the base and alternative model run. Regional emissions showed insignificant differences between the base and alternative scenarios."*

Geographic Area/Service Area/Accessibility. The replacement project in the City of Moreno Valley serves and provides accessibility in the same corridor as the original TCM.

Implementation Schedule. The replacement project will be added to the RTIP through a formal amendment to be approved by SCAG's Regional Council.

Financial Commitment. The $35,000 replacement project will be funded with Minor State Cash.

TABLE 1: 2007 Air Quality Emissions Comparison of Existing HOV and Part-time HOV Replacement TCM on SR-60 in Moreno Valley

(VMT in 1000s, emissions in tons/day)

Existing HOV Operation:	**VMT	***ROG	CO	NOx	PM10	SOx	Direct PM2.5 (Annual)
LDV+MDV	342,781	228.17	2,331.38	205.26	15.14	1.86	9.6
HDT	22,043	28.93	194.45	256.1	5.42	0.36	4.46
Others*	2,938	4.2	58	25.96	0.55	0.04	0.45
Sum	**367,762**	**261.3**	**2,583.83**	**487.32**	**21.11**	**2.26**	**14.51**
Part-time HOV Replacement:							
LDV+MDV	342,781	228.18	2,331.59	205.27	15.14	1.86	9.61
HDT	22,042	28.93	194.47	256.14	5.42	0.36	4.46
Others*	2,938	4.2	58	25.96	0.55	0.04	0.45
Sum	**367,761**	**261.31**	**2,584.06**	**487.37**	**21.11**	**2.26**	**14.52**

Note:
*Others – include Line Haul vehicles, motor homes, school buses, and urban buses.
**VMT X 1000
***Pollutants in tons – South Coast Air Basin. Emissions factors applied in the modeling were based on EMFAC2002, LDV (light duty vehicle); MDV (medium duty vehicle); HDV (heavy duty vehicle).

FIGURE 1: Project Vicinity Map

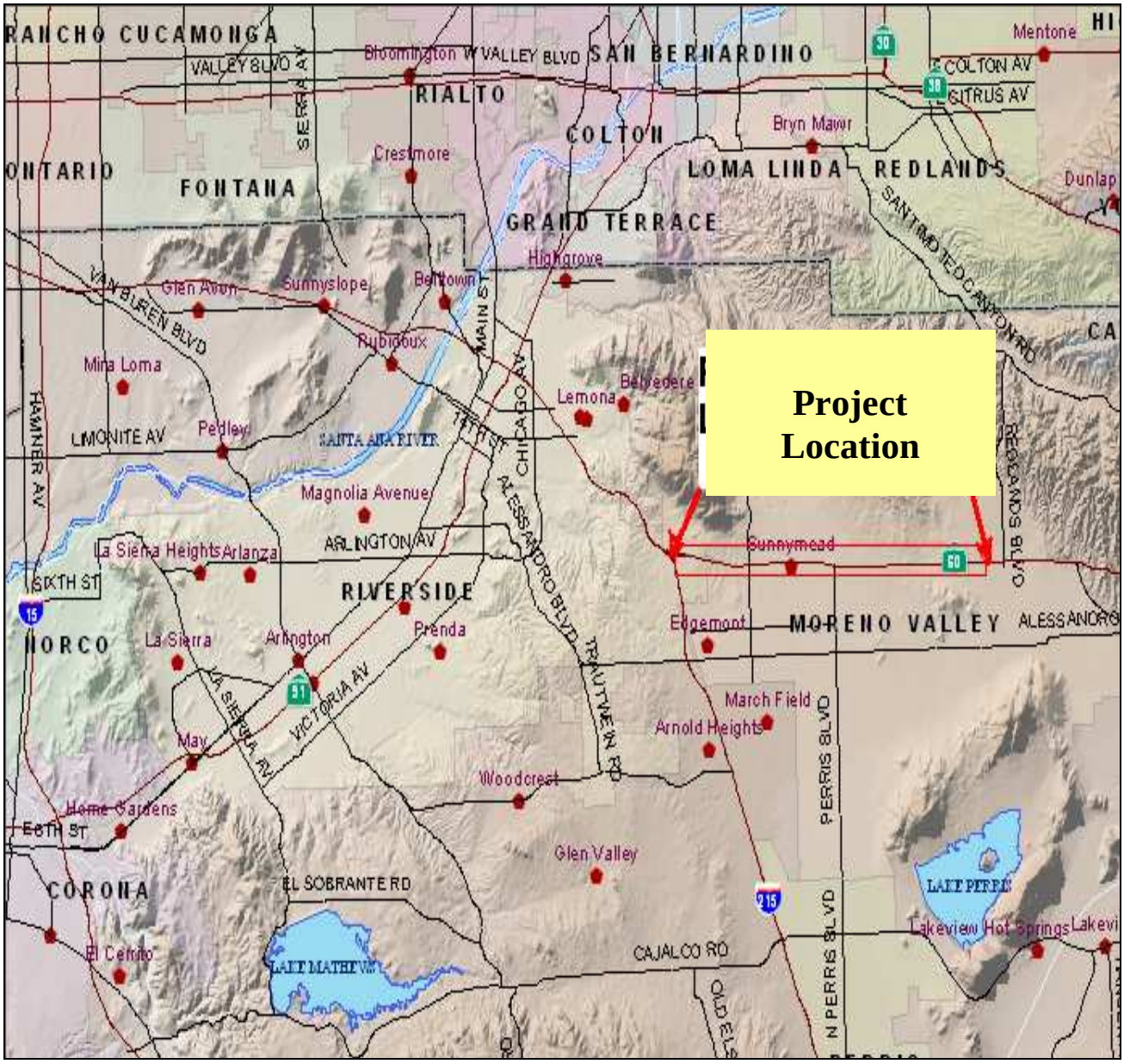
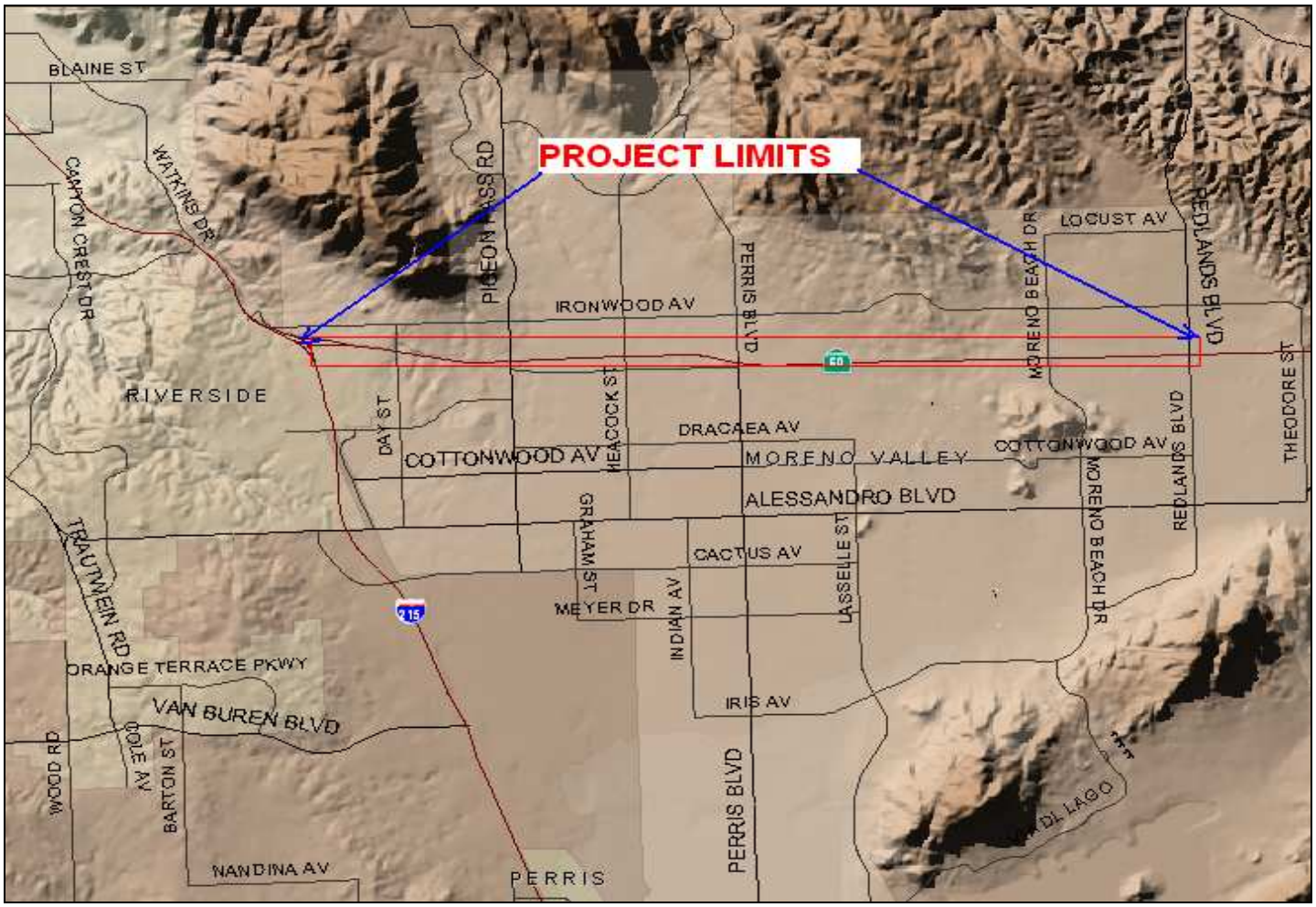


FIGURE 2: Project Location Map



Summary of SR-60 HOV Lane TCM Replacement

The purpose of this TCM replacement is to substitute an existing full-time HOV project on State Route 60 in Moreno Valley with a part-time HOV project. The conversion will be for a period of three years at which time it will revert back to a full-time HOV.

- **SCAG Review and Adoption.** The replacement TCM will be presented to SCAG's Transportation and Communications Committee in the form of a RTIP Amendment supported by emissions modeling and a conformity finding for its recommendation. The meetings will be publicly noticed. A 30-day public comment period and public hearing is included.

- **Interagency Consultation.** Interagency Consultation is occurring at SCAG's publicly noticed Transportation Conformity Working Group meeting on November 28, 2006.

- **Equivalent Emission Reductions.** The part-time HOV project virtually shows no significant difference in emissions from the existing full-time HOV for ROG, NOx, CO AND PM10 as supported with emission model runs.

- **Similar Geographic Area.** The replacement project in the City of Moreno Valley serves and provides accessibility in the same corridor as the original TCM.

- **Full Funding.** The $35,000 replacement project will be funded with Minor State Cash.

- **Time Frame.** The replacement project (the part-time HOV) will be completed and in operation by June 2007.

- **Legal Authority.** Caltrans has full legal authority to construct and operate the replacement project.

- **Implementation Commitment.** The replacement project will be added to the RTIP through a formal amendment to be approved by SCAG's Regional Council.

- **AQMP – Consistency Methodology.** The methodology for analyzing emissions used AQMP – consistent assumptions and modeling techniques.

- **Latest Planning Assumptions.** Technical analysis of the replacement project was based on EMFAC2002 emission factors version V2.2. The emissions estimation is for the year 2007.

Transportation Control Measure (TCM) Under Review: Existing Full-time HOV Lane Project in South Coast Ozone and PM10 Nonattainment Areas (Riverside County)			Date of TCM Substitution Receipt by EPA: *date*
Reviewers: *Name*		**Date:**	
Transportation Review Criteria From *Clean Air Act section 176(c)*		**Is Criterion Satisfied? Y/N**	**Reference in SIP Document/ Comments**
176(c)(8)(A)(i)	The substitute measures achieve equivalent or greater emissions reductions than the control measure to be replaced;	Y	Part-Time HOV lane project has been substituted for the existing full-time HOV lane on SR-60 in the City of Moreno Valley. The part-time HOV lane project provides equivalent reductions for ROG, NOx, CO, and PM10 as supported with emission model runs. The methodology for analyzing emissions used assumptions and modeling techniques consistent with those used in the SIP, with EMFAC2002.
176(c)(8)(A)(ii)	The substitute control measures are implemented in accordance with a schedule that is consistent with the schedule provided for control measures in the implementation plan;	Y	The replacement project (part-time HOV) will be completed and in operation by June 2007. The replacement project in the City of Moreno Valley serves and provides accessibility in the same corridor as the original TCM (full-time HOV).
176(c)(8)(A)(iii)	The substitute and additional control measures are accompanied with evidence of adequate personnel and funding and authority under State or local law to implement, monitor, and enforce the control measures;	Y	Caltrans has full legal authority to construct and operate the replacement project. The $35,000 replacement project will be funded with Minor State Cash. The replacement project will be monitored annually through TCM Timely Implementation Reports that SCAG submits to FHWA.
176(c)(8)(A)(iv)(I)	The substitute and additional control measures were developed through a collaborative process that included participation by representatives of all affected jurisdictions (including local air pollution control agencies, the State air pollution control agency, and State and local transportation agencies);	Y	Interagency consultation occured at SCAG's publicly noticed Transportation Conformity Working Group Meeting on November 28, 2006. Members of the Conformity Working Group include: EPA, FHWA, FTA, CARB, Caltrans, the South Coast Air Quality Management District, and the Riverside County Transportation Commission.
176(c)(8)(A)(iv)(II)	The substitute and additional control measures were developed through a collaborative process that included consultation with the Administrator;	Y	EPA was included in the area's Conformity Working Group process.
176(c)(8)(A)(iv)(III)	The substitute and additional control measures were developed through a collaborative process that included reasonable public notice and opportunity for comment; and	Y	The replacement TCM was presented to SCAG's Transportation and Communications Committee in the form of an RTIP Amendment supported by emissions modeling and a conformity finding for its recommendation on ***date*** , with SCAG Regional Council action on ***date*** . These meetings were publicly noticed. A 30-day public comment period and public hearing was included.
176(c)(8)(A)(v)	The metropolitan planning organization, State air pollution control agency, and the Administrator concur with the equivalency of the substitute or additional control measures.	Y	The replacement TCM was adopted, in the form of an RTIP Amendment, by SCAG's Regional Council on ***date*** . The California Air Resources Board concurred with the substitution.

1.0 Introduction

This study evaluates the potential air quality impacts associated with proposed conversion of full-time (24 hours) High Occupancy Vehicles (HOV) lane operation to part-time operation on State Route 60 (SR-60). The proposed project is located on the segment of SR-60 (PM R 12.2 to R 20.4) East of SR-60/215 Separation (Junction) in the City of Moreno Valley in Riverside County. The proposed project is a transportation Control Measure (TCM) replacement project and is substituting an already built TCM, existing HOV lane, which is in an approved State Implementation Plan (SIP). The proposed project will have more benefits compared to existing TCM by improving the operation of the facility within the corridor during the off peak periods. This study includes short description on the existing condition of the facility and the scope of proposed project. The study presents emissions analysis data prepared by Southern California Association of Governments (SCAG), a local Metropolitan Planning Organization (MPO) along with the traffic data from recent Traffic Study Report, and from the previously approved Project Report (PR, 1994) on Existing HOV lane project with ID # EA 463600. The recent "Traffic Study to Convert Full–time HOV Operation to Part-time on State Route 60 from PM R 12.2 –R20.4 in Riverside County, (January 2006)" for proposed project was prepared by California Department of Transportation (Caltrans) District 8. The emissions and traffic data have been utilized in this study for comparison and analysis purposes. The forecasted ADT traffic data (2015) from PR for the already constructed HOV project has been used to supplement the current and forecasted ADT for the facility which is not available at the time of preparation of this report. The construction cost for proposed project improvements is estimated at $ 35,000.00 approximately**.** The project vicinity and location is shown on the maps. See figures 1 & 2 of the study.

1.1 Background

Caltrans plans to convert the existing full-time (24 hours) High Occupancy Vehicle (HOV) lane to part-time HOV operation in both directions on an eight miles segment of SR-60 East of Junction of SR-60/I-215 (R12.2) to Redlands Boulevard (PM 20.4). The HOV lane is an approved TCM in the SIP, which has already been constructed and opened to traffic in March 2004 as a full-time HOV operation (See Figure 3 showing HOV limits). Caltrans needs to seek approval from Federal Highway Administration (FHWA) for the proposed conversion project before it is implemented**.** To facilitate the process, a conference call was held on March 23, 2006 involving Federal Agencies, Environmental Protection Agency (EPA), Federal Highway Administration (FHWA), Southern California Association of Governments- MPO, and Caltrans, Head Quarter (HQ) and Caltrans District 8. During the conference it was determined that since the project is a State Implementation Plan (SIP) Transportation Control Measure (TCM), Caltrans needs to obtain concurrence from EPA for the proposed conversion. Caltrans is required to develop an emission analysis and coordinate with EPA to determine if a SIP revision and conformity determination is required. At Caltrans request, SCAG's modeling staff performed a Model sensitivity run to test the mobility and air quality

impacts resulting from the proposed conversion of SR-60 full-time HOV to part-time operation to allow single occupant vehicle (SOV) use in the off peak period (mid-day and night time use only). The results of emissions analyses generated for criteria pollutants are shown in Table 1. The analyses were based on the model runs previously performed for Air Quality Management Plan (AQMP) for year 2007. The SCAG's findings after model runs are as follow: "*Results from the base model run (With existing HOV) and the alternative model run (with HOV conversion) were compared and analyzed. Overall the HOV conversion had very little effect on corridor level traffic volumes. There are some diversions of SOVs to the converted HOV lane, but the overall freeway volume showed little change. Also, there are no significant changes in the freeway or HOV speeds between the base and alternative model run. Regional emissions showed insignificant differences between the base and alternative scenarios*."

2.0 Project Description

The Segment of SR-60, within the project limits (see Figure 3), currently has 3 mixed flow lanes, 12 foot in width in each direction starting from east of 215/60 Junction (PM R12.2) and continues through Day Street. One of continuous mixed flow closer to the central median of the freeway converts into a 12-foot wide HOV lane in eastbound (EB) direction just before Fredrick Street Exit. This is the beginning point of the actual HOV lane, which then trvverses over several miles and ends just before Redlands Boulevard exit with intervening ingress/ egress point at Perris Boulevard. Correspondingly a HOV lane also exits along with two mixed flow lanes in westbound (WB) direction of SR-60 within the same stretch of the freeway. Presently the full-time HOV Lane is separated from the #1 mixed flow lane by one foot striped buffer with designated ingress/egress locations in each direction.

The TCM replacement project proposes to convert the existing full-time (24 hours) HOV operation in each direction of SR-60 to part-time operation during peak hours. The morning (am) peak hours are from 6:00 to 9:00 and afternoon (pm) peak hours are from 3:00 to 6:00. For the remaining time (off-peak period) the HOV Lane would be open for use by the Single Occupant Vehicle (SOV) on an 8 miles segment of SR-60. The SOV would be able to enter/ exit the HOV lane only at the existing designated ingress and egress locations. The conversion project proposes to install new signs along the freeway within the project limit and would maintain the existing lanes configuration and buffer striping between HOV lane and mixed flow lanes. An aggressive public awareness campaign will be launched to spread the word to the motorist about the proposed change in the hours of HOV operation.

The alternative will allow single occupancy vehicles to use the HOV lane after the am and the pm peak hours. The Analysis of traffic data as given in the recent traffic analysis report for the proposed conversion of HOV lane shows that HOV lane is under-utilized by the motorist during the off peak period. Under the scope of work for the build alternative of the proposed project, new freeway signs will be installed informing motorist about the hours of HOV operation. The existing 1-foot wide striped buffer between the HOV lane and mixed-flow lanes will remain unchanged. No striping

FIGURE 1: Project Vicinity Map

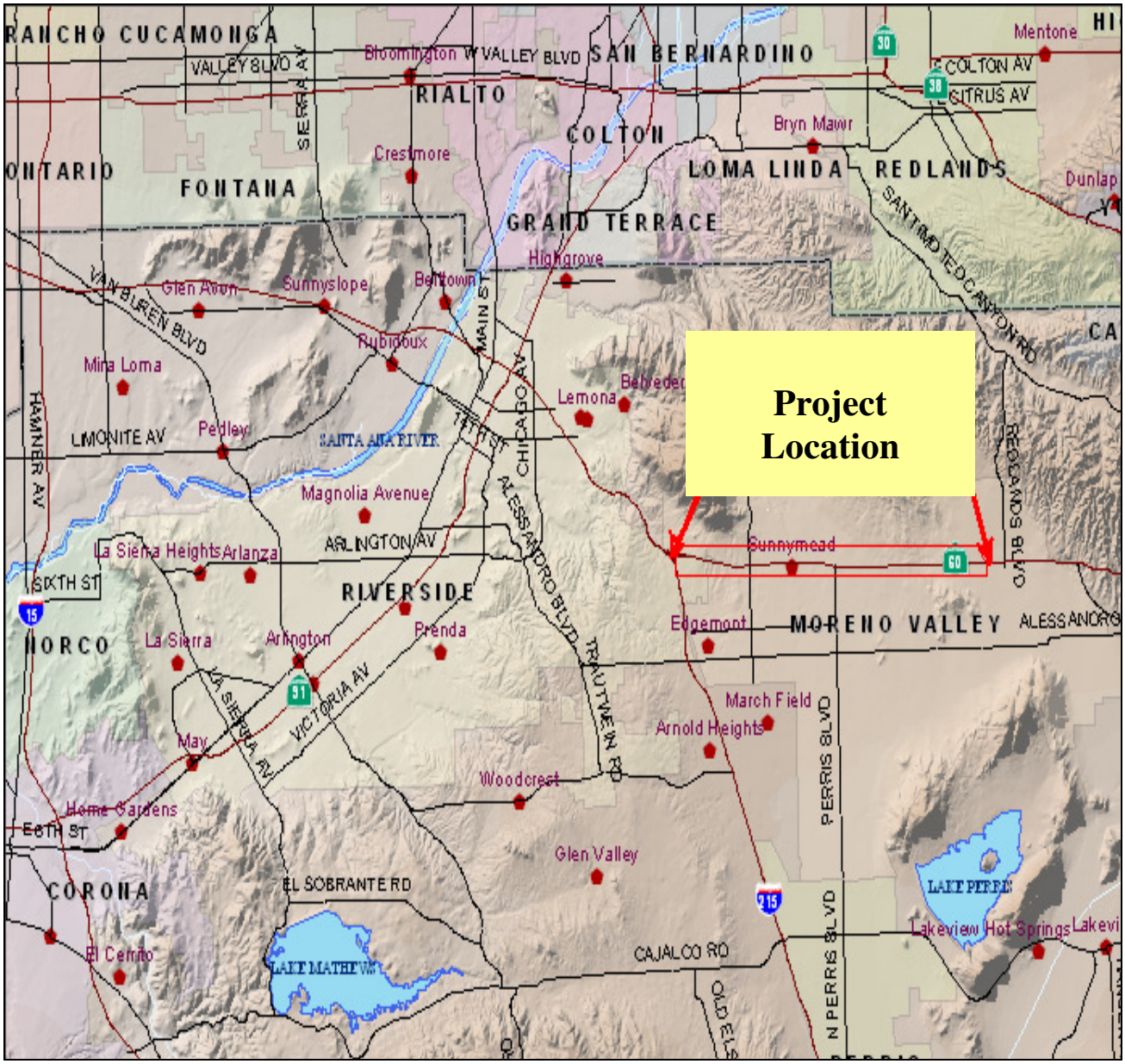
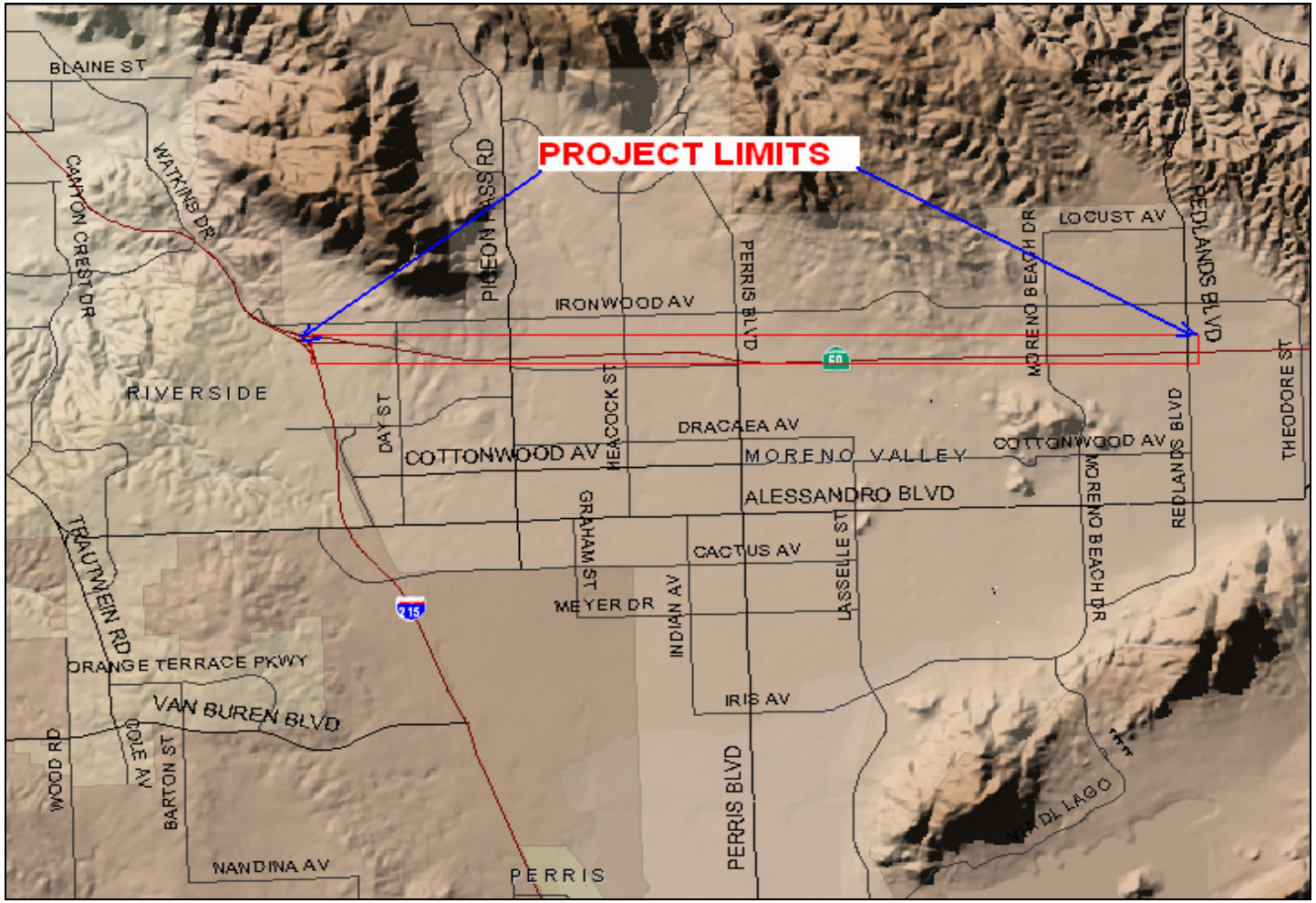


FIGURE 2: Project Location Map



modification to existing mixed flow lanes is planned. The benefits from the lane conversion are also discussed in the foregoing sections elsewhere of this study. Apart from increase in overall operational efficiency of the system by utilizing the unused capacity of the HOV lane by motorist, the increase in anticipated speed could help in reducing PM_{10} and $PM_{2.5}$ exhaust emissions from the diesel trucks engines which produce lesser $PM_{2.5}$ emissions and air toxics at higher speed.

2.1 Project Alternatives and comparisons

The following alternatives have been evaluated in this HOV conversion to HOV part-time operation study

a) No build: Full- time HOV Operation (HOV+ Mixed Flow Lanes)

b) Build: Converting existing HOV to Part-time operation (Three/All Mixed Flow Lanes)

2.1.1 No Build alternative

The 'No build' alternative is used to compare the relative impacts and benefits of the proposed project improvements. Under the No-Build alternative, no improvements are proposed to the existing roadway. The segment of SR-60 East Junction of SR-60/I-215 (PM R12.2) to Redlands Boulevard (PM R20.368) has one HOV and two mixed flow lanes in each direction. Each mixed flow lane including HOV lane is 12 foot wide in each direction. HOV lane starts from Fredrick/ Pigeon Pass (PM14.32) east of 60/215 Interchange(IC) and ends just before Redlands Boulevard in eastbound direction and vice versa**.** The traffic study performed in this segment of SR-60 concludes: The Off peak Volumes on HOV lane are 40% to 50% less than peak hour volumes and thus the capacity will remain under-utilized. The System Planning and Forecasting Department of the District 8 performed traffic forecasting using RIVSAN model to forecast the future traffic and LOS. The projected traffic peak hour volumes are presented in Figure 5 and 6. The Level of Service analyses were conducted for " No Build " alternative for the Years 2005 and 2015 and are tabulated in the Table 7 and 8. It can been seen that in general the mixed flow lanes during off peak hours operates at level of service of 'C'

Presented here are Tables 3 and 4 from the previous project study report (1994) on existing HOV, which tabulates the projected LOS and PHV and ADT for year 2015 for different segments on the mainline. It can be observed that the predicted level of Service is F3 to F0 and E for the segment of the mainline SR-60 between 60/215 junction and Fredrick Street/ Pigeon Pass Road. The maximum traffic peak hour volume and ADT, for year 1994/2015 for the segment between 60/215 interchange and Day Street Interchange, are 4100/7700 VPH (vehicles per hour) and 105,000/ 160,000 VPH respectively. In the recent Traffic Study (January 2006) performed by Caltrans District 8, the peak hour volumes were analyzed and are presented in Table 5 and 6. The PHV for

eastbound direction for year 2005/2015 were maximum at 2265+ 645 (Mixed flow Lane-[MFL] + HOV)/ 3268+806 (MFL + HOV) respectively. The recent Traffic Study (2006) on the segment of the SR-60 in Moreno Valley does not cover the traffic data for the segment between west of Fredrick Street and 60/215 Junction but includes traffic volume counts for the segment SR-60 east of Fredrick Street towards Redlands Boulevard. It could be noted that with the increasing demand from the commuter traffic and the population growth and commercial developments along the corridor, the No built alternative will not resolve traffic congestion on mixed flow lanes but congestion would worsen with time. The congestion on mixed flow lanes would not reduce until the outside widening is made to the facility in future in order for the traffic to move at a reasonable level of service. This alternative will not improve traffic flow or reduce congestion which otherwise would worsen with the growing traffic in the future. Increased congestion would then contribute more toward exhaust emissions from the vehicles exhaust and especially from diesel vehicles as this corridor is a major heavy trucks route.

2.1.2 Build Alternative: Part-time HOV operation Alternative:

The build alternative proposal is based on the findings of the recent traffic study for the segment of SR-60 in Moreno Valley. This alternative will allow single occupancy vehicles to use HOV lane after (6:00 to 9: 00) A.M and (3:00 to 9:00) PM peak hours. The analysis of traffic data in the recent traffic analysis report for the proposed conversion of HOV lane show that HOV lanes is under-utilized by the motorist during off peak period. Under the scope of work for the build alternative of the proposed project, new freeway signs will be installed informing motorist about hours of HOV operation. No changes are proposed to the existing facility by adding extra lanes. The existing 1-foot wide striped buffer between the HOV lane and mixed-flow lanes will remain unchanged. No striping modification to existing mixed flow lanes is planned. The benefits from the lane conversion have already been discussed in the foregoing sections of this study. Apart from increase in overall operational efficiency of the system by utilizing the unused capacity of HOV lane by motorist, the increase in anticipated speed could help in reducing PM_{10} and $PM_{2.5}$ exhaust emissions from the diesel trucks engines which produce lesser $PM_{2.5}$ emissions and air toxics at higher speed.

As can be observed in Table 3 from the HOV Report (1994) the projected level of service for year 2015 for existing facility ranges from F0 and F3 during the morning and afternoon peak periods for the freeway segment between 60/215 Interchange (IC) and Day Street in east bound direction in spite of the inside widening for HOV lanes will not cope with the demand of traffic for the year 2015. At that time outside widening would be necessary in order to move traffic at reasonable level of service.

For build alternative (all mixed flow lanes), the LOS analyses for years 2005 and 2015 are tabulated in the Tables 7 and 8. The analysis of LOS indicates general improvement in the level of service from ‘C ‘to ‘B’ and ‘D’ to ‘C’ respectively with the proposed project.

The benefits from the lane conversion are also summarized and discussed in the conclusion section of the study. Apart from increase in overall operational efficiency of the system by utilizing the unused capacity of HOV lane by motorist, the anticipated increase in speed would help reduce PM_{10} and $PM_{2.5}$ exhaust emissions from the diesel trucks engines. This alternative would also help to reduce the congestion on mixed flow lanes during off peak period.

2.2 Purpose and Need

The purpose of converting the existing HOV lane to part-time operation is to ease up the congestion on the existing 2 mixed flow lanes during off peak hours by allowing SOVs to use of HOV lane and thus giving more flexibility and convenience to the traveling motorist and at the same time optimizing the use of existing highway capacity. The traffic analysis performed in the traffic study (January, 2006), prepared by Caltrans District 8 indicates that the HOV lane is under-utilized during off-peak hours ranging from 40% to 50% that of the peak hour operation. It is anticipated that the conversion plan may enhance the operational efficiency of the facility within the corridor and increase the traveling speed in general on mixed flow lanes during off-peak hours, and improve overall safety by lowering the traffic densities during off peak hour on mixed flow lanes. Further, during incidents and lane closures from construction activities the HOV lane could be used to move traffic to HOV lane on off peak hours and curtail delays. The convenience other wise is not available in full–time HOV operation mode. The conversion of HOV lane is an interim measure for 3 years period only. During the trial period Caltrans would evaluate the traffic and air consequences of the proposed conversion of HOV lanes. The study results that would be available later would help determine if the anticipated benefits from the proposed conversion to motorists in terms of convenience, mobility, safety and reduced congestion are achieved as planned. The measurable parameters to this effect would be, improvement in LOS of the facility, reduction in accidents rate, and the popularity of the part-time HOV operation policy with the motorists (Satisfaction Survey). Moreover, the review of monitoring data on pollutants concentrations at the end of the trial period would let Caltrans determine the anticipated improvement in the ambient air quality resulting from the possible reduction in the emissions of criteria pollutants. As mentioned earlier that moving traffic faster on mixed flow lanes during off–peak hours would results in lesser emissions of pollutants

2.3 Land Use

The traffic volumes on State Route 60 have steadily grown over the years as population has increased along the corridor of Route 60. When this section of State Route 60 was originally built in the early 60s, the area was a rural community. As a result the freeway, interchanges and ramps were designed for low volume traffic conditions. The situation today has changed due to tremendous population growth in the City of Moreno Valley. This increase in traffic volume is straining the system and has congested some of the freeway segments and interchanges during the peak periods. The City of Moreno Valley has grown at a rate faster than the expected rate primarily due to the availability of economic housing in the area. According to the data published by the City's Department

of economic Development, 70% of the City's workers travel to jobs outside the City of Moreno Valley. State Route 60 through Moreno Valley has seen a change in land use over the years. The present land use consists of predominantly low-density residential and agricultural uses with some commercial use. The section between 60/215-interchange and Perris Boulevard has seen changes in land-use with a number of commercial developments opening business. The most significant of these developments in addition of Moreno Valley Mall, which is major traffic generator. The traffic originating in Moreno Valley is typically commuter traffic involved in intra regional travel.

2.4 Existing facility

The Segment of SR-60, within the project limits (see Figure 3), starting from East Junction of SR-60/I-215 (PM R12.2) currently has 12 foot wide three mixed flow lanes in each direction and continues through Day Street just before the beginning of HOV lane. One of the three continuous mixed flow lane closer to the central median of the freeway converts into a 12-foot wide HOV lane in Eastbound (EB) direction just before the Fredrick Street Exit/ Pigeon Pass (PM14.32). This is beginning point of the actual HOV lane, which runs over several miles and ends just before Redlands Boulevard exit (20.4) with intervening ingress/ egress point at Perris Boulevard. Correspondingly a HOV lane also exists along with two mixed flow lanes in westbound (WB) direction of SR-60 within the same stretch of the Freeway. Presently the Full-time HOV Lane is separated from the #1 mixed flow lane by one foot striped buffer with designated ingress/egress locations in each direction.

The design speed of the freeway facility is 65 mph. Auxiliary lane has recently been added between Fredrick Street and Day Street for both eastbound and westbound traffic. Auxiliary lanes EB/WB between Nason Street and Moreno Beach Drive is proposed and is currently under planning and design stage (EA #323010). A typical cross-sections of existing Route 60 (see Figure 4) and also the proposed cross section of the segment of SR-60 in the area for the proposed auxiliary lane project is provided in the appendix 'A' showing existing conditions of the facility and the improvements from the proposed project (EA #323010)

Historically, the State Route 60 was built in early 1960's within the project limits in Moreno Valley (formerly known as Sunny mead) as freeway with interchanges and ramps for low traffic volumes. The State Route 60 (SR-60) is an east-west principal arterial. The westerly limit of the route is near the junction of Interstate 5 (I-5) and Interstate 10 (I-10) in the City of Los Angeles and the easterly limits is at the junction of I-10 in the City of Beaumont, California. The total length of the SR-60 is 70.4 miles, out of which 40.5 miles is within District 8. It serves the counties of Los Angeles, San Bernardino and Riverside and traverses through the cities of Los Angeles, Montery Park, South El Monte, Industry, La Puenta, Walnut, Diamond Bar, Pamona, Chino, Ontario, Riverside, Moreno Valley and Beaumont.

SR-60 is functionally classified as an urban principal arterial and is the part of the California Freeway and Expressway System. It is included in the national network for

FIGURE 3: Project Limits

FIGURE 4: Existing SR-60 Cross-Sections

Federal Surface Transportation Assistance Act (STAA) for oversized trucks. The ultimate Route 60 will be a 10-lane freeway between Los Angeles/ San Bernardino County line to 60/91/215 interchange and an 8-lane freeway between 60/215 interchange and 60/10 junction in Beaumont. HOV lanes have also been included for the entire length of State Route 60 in the Regional Transportation Improvement Plan, Southern California Association of Governments (SCAG) Regional Mobility Plan and the District 8 Long Range Operation Plan (LROP)

State Route 60 spans through fairly level terrain between Los Angeles/San Bernardino County line to the 60/91/215 interchange in the City of Riverside, however the terrain turns to rolling between 60/91/215 interchange and it easterly limits in the City of Beaumont. The existing lane configuration of the facility with the project Limits starting form East of 215/60 separation to Redlands Boulevard comprises of two mixed flow lanes and one HOV lane in each direction. The section between Post Mile 22.1 and 30.5 in Riverside County is classified as four lanes expressway. The inside and outside shoulders are 5 and 8 foot wide respectively and is constant throughout the district. State Route 60 overlaps with interstate 215 for a five-mile long section between 60/215/91 interchange and 60/215 interchange. The lane configuration for this section consists of a six-lane freeway with five foot wide inside shoulder and an eight-foot wide outside shoulder.

3.0 Hours of Operation policy

There are only two basic hours of operation policies for HOV Facility: “full-time” and “peak period only.” Both policies are currently being used in California. The peak period only policy provides preferential treatment of HOV’s only during the limited periods of peak demand, which occurs during the morning and evening commutes hours. The HOV lane is opened to all traffic and operates as an additional mixed-flow lane outside of the peak traffic period and weekends. The existing HOV facility on SR-60 currently operates on "full-time" basis and these hours were established prior to the implementation of the project and opening the existing HOV facility to the traffic in the year 2004. In reaching a decision on the option of the full-time operation policy, consideration was given to these parameters, anticipated rider ship (ride sharing), ease of enforcement, elimination confusion to the motorist and regional traffic characteristics in reaching the full-time operation policy.

The basis for selecting one of the two available options (“peak period policy” or “full time policy”) on hours of operation policy for HOV lane, is elaborated as under: Besides the local politics which could complicate the selection of the policy, as a matter of practice the traffic pattern, regional demand and rider ship trends both during peak and off-peak hours are essentially to analyzed before the hours of operation policy is adopted for the HOV lane facility. The objective of the analysis and evaluation of traffic characteristics is to determine the peak-hours periods and congestion periods in each direction of the Route. If high traffic volumes and breakdown traffic condition (LOS F) and sever congestion occurs or lasts for extended period of time, then “Full-time

operation is recommended for the facility. How well the HOV hour of operation policies are applied judiciously depends on the traffic characteristics (volumes) and pattern, regional future demand of traffic. If the traffic is heavy in one direction it is beneficial to operate the lane as full–time HOV in that direction. In case of a scenario where rider ship is low on HOV lane during certain off peak hours period of the day then "part-time HOV operation" is an option of choice. This option utilizes the under-used capacity of HOV lane by SOVs. The California Department of Transportation's *High Occupancy Vehicle (HOV) Guidelines for planning, Design, and Operation* States that " If future car pool lanes are to be built, whether 24 –hours (full-time) or peak periods only, the operating hours of the HOV facility should be consistent throughout the region." This is important to reduce the motorist confusion and to allow a system-wide network of HOV facilities to function together. The hour of operation policies criteria and other aspect are detailed in the Caltrans recent traffic study report for Route-60. See Appendix, 'A' which provides excerpt from the traffic study report.

4.0 Environmental Setting

The *Clean Air Act section 176(c)* requires that federally supported highway and transit project activities are consistent with state air quality goals, found in the *state implementation plan* (SIP). The process to ensure this consistency is called Transportation Conformity. Conformity to the SIP means that transportation activities will not cause new violations of the *national ambient air quality standards* (NAAQS or "standards"), worsen existing violations of the standard, or delay timely attainment of the relevant standard.Transportation conformity is required for federal supported transportation projects in areas that have been designated by the U.S. Environmental Protection Agency (EPA) as not meeting a NAAQS. These areas are called *non-attainment areas* if they currently do not meet air quality standards or *maintenance areas* if they have previously violated air quality standards, but currently meet them and have an approved *Clean Air Act section 175A* maintenance plan. The project is located in the South Coast Air Basin (SCAB). The U.S. Environmental Protection Agency (EPA) classifies this air basin as non-attainment for federal $PM_{2.5}$ ambient standards. This project is a STAA truck route and increases the number of diesel trucks that would utilize the facility. The *Surface Transportation Assistance Act* (*STAA*) of 1982 allows large trucks to operate on the Interstate and certain primary routes called collectively the National Network. These trucks, referred to as *STAA* trucks, are longer than California legal trucks. As a result, *STAA* trucks have a larger turning radius than most local roads can accommodate. It was determined that this is a project of air quality concern, a federal approval or authorization is required subsequent to April 5, 2006, and thus a hot spot analysis is required. EPA amended the Transportation Conformity rule on March 10, 2006, requiring a hot-spot analysis to determine project-level conformity in $PM_{2.5}$ and PM_{10} non-attainment and Maintenance areas. A hot spot analysis is an assessment of localized emissions impacts from a proposed transportation project and is only required for "projects of air quality concern." The March 10, 2006 rule provides examples of projects of air quality concern. The $PM_{2.5}$ and PM_{10} hot-spot requirements in the final rule became effective April 5, 2006. Project level conformity determinations are required pursuant to *40 CFR §93.116. And §93.123.*

Mobile Sources Air Toxics (MSAT)

The federal Clean Air Act (CAA) identified 188 pollutants as being air toxics, which are termed as hazardous air pollutants (HAP). From this list, EPA identified a group of 21 as MSATs in its final rule, "Control of Emissions of Hazardous Air Pollutants from Mobile Sources" (66 FR 17235) in March 2001. From this list of 21 Mobile Sources Air Toxics (MAST), EPA has identified six MASTs, benzene, formaldehyde, acetaldehyde, diesel particulate matter/ diesel exhaust organic gasses, acrolein, and 1,3-butadiene termed as priority MSATs. To address emissions of MSATs, EPA has issued a number of regulations that will drastically decrease MSATs over the next 20 years. Even after accounting for a 64 percent increase in vehicle miles traveled (VMT), FHWA predicts MSAT will decline in the range of 57 percent to 87 percent, from 2000 to 2020 through cleaner fuels and cleaner engines. On February 3, 2006, FHWA released interim guidance on when and how to analyze (MAST) in the national Environmental policy Act (NEPA) process for highway projects. There are three levels (categories) of analysis for the transportation project: (1) exempt projects or projects with no meaningful potential MSAT effects; (2) projects with low potential MSAT effects; and (3) project with higher potential MSAT effects.

Under Category 1 (exempt projects), three types of projects are included; (1) projects qualifying as a categorical exclusion under 23 CFR 771.117(c), (2) projects exempt under the CAA conformity rule 40 CFR, and (3) other project with no meaning impacts on traffic volumes or vehicle mix.

The proposed project fall under category 1 and other project with no meaningful impacts on traffic volumes or vehicle mix. As could been seen that the proposed project would not increase traffic volumes or traffic mix. No additional trips would be generated by the implementation of the project. The project is simply installing traffic signs on the freeway and would in no way effect traffic volumes. Thus the project would qualify as an exemption under category (1) of Interim Guidance. The percentage of diesel truck in the vehicle mix as determined in the recent traffic analysis report is 10% and would remain the same. As such the project will generate minimal air quality impacts for MSAT, so the project is screened out and is exempt from MSAT analysis as required under NEPA process for highways.

4.1 Emissions Analysis: Comparison of Build and No build Alternatives

The Table 1 below presents the emissions per tons per day for criteria pollutants estimated from mobile sources for existing condition (existing full-time HOV and two mixed flow lanes) and for proposed project (converting to part-time HOV operation and 2 mixed flow lanes) on the freeway within project the limits. The emission factors for vehicle type is based on EMFAC2002, Version V2.2 and the emissions estimation are for the year 2007. As can be seen by comparing the results of emissions analyses of the

two alternatives there appears virtually no significant difference in emissions between existing HOV (No build condition) and HOV part-time operation (build condition).

TABLE 1: Air Quality Emission Analysis SR-60 Part-time HOV. Operation Moreno Valley for Year 2007. South Coast air Basin UMT and Summer emissions.
(VMTin 1000s, emissions in tons/day)

	**VMT	***ROG	CO	Knox	PM10	SOX	Direct PM2.5(Annual)
Existing HOV Operation:							
LDV+MDV	342,781	228.17	2,331.38	205.26	15.14	1.86	9.60
HDT	22,043	28.93	194.45	256.10	5.42	0.36	4.46
Others*	2,938	4.20	58.00	25.96	0.55	0.04	0.45
Sum	**367,762**	**261.30**	**2,583.83**	**487.32**	**21.11**	**2.26**	**14.51**
After Converting to Part Time HOV Operation:							
LDV+MDV	342,781	228.18	2,331.59	205.27	15.14	1.86	9.61
HDT	22,042	28.93	194.47	256.14	5.42	0.36	4.46
Others*	2,938	4.20	58.00	25.96	0.55	0.04	0.45
Sum	**367,761**	**261.31**	**2,584.06**	**487.37**	**21.11**	**2.26**	**14.52**

Note:

* "Others" include Line Haul vehicle, motor home, school bus, and urban bus

** VMT X 1000

*** Pollutants in tons - South Coast Air Basin. Emissions factors applied in the modeling based on EMFAC2002, LDY, light duty vehicle; MDV, medium duty vehicle; HDT, heavy duty vehicle

4.2 Monitored Air Quality and Impacts

The California Air Resources Board (CARB) maintains monitoring throughout the South Coast Air Basin (SCAB) to monitor concentration of the criteria pollutants in the air. Pursuant to the federal Clean Air Act (CAA) of 1970, United States EPA established National Ambient Air Quality Standards (NAAQS) for six criteria pollutants: O_3; CO; PM_{10}; NO_2 Sulfur dioxide (SO_2) and Lead (Pb). In 1997 EPA promulgated new federal standards for a seventh pollutant $PM_{2.5}$ and established 8 hour standard.

Designation of Criteria pollutants for the SCAB

Criteria Pollutant	Federal	State
Carbon Monoxide	Serious non-attainment	Attainment
PM10	Serious non-attainment	Non-attainment
PM2.5	Non-attainment	Non-attainment
Ozone (8-hr)	Severe-17 non-attainment	Not designated
NO2	Attainment-Maintenance	Attainment

Source for State Information: California Air Resources Board http://www.arb.ca.gov/desig/adm/adm.htm.
Source for Federal Information: U.S. EPA http://www.epa.gov/air/oaqps/greenbk/index.html last accessed 7/1/05

The data from the monitoring stations (Palm Springs- Fire Station, Riverside-Magnolia, Riverside –Rubidoux) in Riverside County are presented in the Appendix 'B' for $PM_{2.5}$ and PM_{10}. The current data show a declining trend in the National 3- year average for the criteria pollutant ($PM_{2.5}$) in the project vicinity indicating that the ambient air quality would improve further as a result of EPA stricter regulations to produce cleaner fuel and cleaner vehicle engines. The Table above shows the designation of the criteria pollutants within the SCAB region. Attainment means the pollutant is in compliance to National Ambient Air Quality Standards (NAAQS) as well as State Air Quality Standards. Non- attainment refers to the status of the criteria pollutants ambient concentration in the air and not meeting the NAAQS. Western Riverside portion of SCAB, although in compliance with federal standard for Carbon Monoxide for last three years but is still classified as serious non-attainment. The South Coast Air Quality Management District (SCAQMD) and California air Resource Board (CARB) has Carbon monoxide attainment and maintenance plan for the area and the request has been submitted for re-designation, which is pending approval from EPA. The area is classified as serious non-attainment for PM-10 national standards. SCAB region, which includes portion of western Riverside County, is as whole as non-attainment for and PM 2.5. Portion of Riverside, and all Orange and urban area of Los Angeles counties are classified as severe-17 non-attainment for National Ozone 8-hour standard. SCAB region is classified as attainment and maintenance area for NO2 standards (National). The existing HOV Full-time (TMC) emissions estimates were included as a part of regional emissions analysis in the 2002 RTIP which was federally approved and conforming to 2002 RTP and emissions budget in the approved SIP. The regional air quality need not be assessed for potential hot spot impacts (Local air quality) on sensitive receptors. The reason being that the project is not anticipated to generated addition trips of commercial or commuter vehicles as a result of the proposed project. There would be no change in the VMT traveled. The current traffic data from recent Traffic Analysis Study (2006) for the Part-time HOV operation show percent of diesel trucks as 10 % of ADT. No increase in VMT or increase in diesel trucks volume as a result of the proposed project is anticipated. Besides the project will not add lanes to increase facility capacity beyond the edge of traveled-way, which could move roadway closer to the sensitive receptors. Considering the above parameters, no impacts on the local air quality is anticipated such as causing new violations, or worsening the existing violations or delay timely of attainment of NAAQS would occur. As the existing full-time HOV project is part of 2002 RTP the project emissions has been accounted for in the emissions budget and approved for conformity by FHWA, so regional air quality is not impacted or worsened by operational emissions with the implementation of the replacement TCM. With the operational improvement of the segment, the project will further help improve the air quality both at regional as well at project level.

5.0 Level of Service (LOS)

Level of Service (LOS) is a qualitative measure describing operational conditions within a traffic stream. For uninterrupted flow conditions, like freeways, the level of service is described in terms of such factors as speed and travel time, freedom to maneuver, traffic interruption, comfort, convenience and safety. Level of service ranges from A through F,

with LOS A describing free flow conditions and LOS 'F' indicates " breakdown", "stop and go" or forced flow conditions. Caltrans Traffic Operations Head quarters have introduced descriptors for LOS 'F' based on the number of hours LOS 'F' lasts, i.e., if LOS F last between 15 minutes and one hour, the LOS is designated as F0, if LOS 'F' lasts between one hour to two hour, the LOS is labeled as F1, for LOS 'F' lasting between two hour and three hour, the LOS is termed as F2 and for LOS 'F' lasting longer than three hours, the LOS is called as F3. Table 2 below shows the relationship of the level of service to the traffic flow and operating speed.

TABLE 2: Relationship of Level of Service to Operating Speed and Congestion

LOS	FLOW DESCRIPTION	OPERATING SPEED	CONGESTION
A	Free flow	$\geq$ 60 mph	
B	Stable, unconstrained	$\geq$ 57 mph	
C	Stable, interference	$\geq$ 54 mph	
D	Stable but severely restricted	$\geq$ 46 mph	
E	Unstable	$\geq$ 30 mph	
F	Forced or breakdown	Highly variable	
F0			15 min to 1 Hr.
F1			1 Hr. to 2 Hr.
F2			2 Hr. to 3 Hr.
F3			More than 3 Hr.

(Adopted from "High Occupancy Vehicle (HOV) Report, For Route 60 Between Junction 60/215 And Redlands Boulevard, in Riverside County. Prepared by Caltrans District 08, San Bernardino, California, May 1994")

5.1 Existing and Projected Level of Service (LOS) and ADT

For the purpose of this study information on traffic data, Level of Service (LOS), PHV, has been used from recent Traffic Study (January 2006) for the proposed project prepared by Operation Division, Caltrans District 8 and e-copy of the portion of the traffic study as furnished by Thomas Ainsworth(Caltrans). Traffic data in the Tables 4 to 8 show the traffic volumes ADT, PHV and LOS during the am and the pm hours for year 2005 and 2015 on east and west bound direction of the segment of the freeway within the project limits. The data provided in the Traffic Study does not show total ADT but assumes the percentages of diesel truck as 10% in the peak hourly traffic volumes. The data on traffic volumes included in the recent Traffic Study (January 2006) were collected from traffic count stations located on eastbound SR-60 east of Day Street and westbound traffic volumes were obtained from Pigeon Pass Road traffic count station. No reason for selecting this location for traffic counts stations location are given in the traffic study. It cannot be said that this is the location where the highest traffic congestion and delays occurs in each direction of SR-60 segment. It is expected that the highest volume may occur between east of 215/60 junction and DayStreet and traffic volume would taper off to a minimum at Redlands Boulevard. This traffic pattern has been detected and established in the project report (1994) for existing HOV facility. The

project report (EA 08-463600, 1994) for the existing HOV (TCM) show existing and projected traffic volumes for various segment of the facility (see Table 4). The highest existing mainline ADT of 105,000 occurred between the Route 60/215 Interchange and the Day Street Interchange while the lowest ADT of 33,400 occurred between Redlands Boulevard and Moreno Beach drive. The projected highest and lowest ADT of 160,000 and 94,000 were forecasted for the same two segments by the year 2015. A 60/40 directional split of traffic occurs during the peak periods with the larger volumes traveling westbound in the AM and eastbound in the PM. Since the Route 60 is included in the National Network for Federal Surface Transportation Assistance Act (STAA) for oversized trucks, it attracts high truck volumes. The previous PR (1994) analyzed the composition of truck traffic in the traffic stream within the project limits and stood at 11%. Traffic. The current year (2006) traffic volumes (ADT) between these locations on mainline is not available in the recent Traffic analysis study. The recent Traffic analysis gives existing truck percentage in the traffic stream as 10%. Due to construction zone on 91/215/60 interchange, it appears that the traffic counts for existing condition are less than what would have been if there were no construction activities. That Construction zones generally divert some traffic on to local streets

Level of service analyses for existing traffic conditions for the segment mainline was performed for both the A.M. and P.M. Peak periods in each direction. The level of service for freeway segment during peak periods is presented in the Tables 7 and 8 for both alternatives for year 2005 and 2015. As seen from the Tables 7, based on the mainline traffic in both during the A.M and P.M peak period for the year 2005 for No build alternative (HOV+ all mixed flow lanes-MFL), the facility operates under stable conditions with the LOS ranging between 'B' and 'C' from Redlands Boulevard and 215/60 Junction. For Build Alternative (all mixed flow lanes, off peak hour) for the year 2005, the facility operates at the LOS is 'B'. For the Year 2015 the Projected Level of Service (LOS) for Mainline, No build alternative (HOV+ All Mixed Lanes) Level of Service (LOS) ranges from 'B to 'E' with mostly LOS of C to D except for Build alternative (HOV + MFL) westbound traffic at period 3:00 PM peak when the projected LOS is E (unstable condition). For the projected year 2015, the LOS for the build alternative (Three/all Mixed Flow, Off –Peak) ranges from 'B' to 'C' and stays at LOS 'C' most of the time during the day.

6.0 TRAFFIC DATA: Current and Forecasted Peak Hour Volumes (PHV) and Level of Service (LOS) and Average Daily Traffic (ADT)

The following traffic information on LOS, PHV and ADT has been obtained from the recent traffic study (2006) and previous traffic study on the existing HOV lane and Project Report (1994, EA 463600) on State Route 60. In the recent Traffic Study on the segment of the SR-60 between East of 60/I-215 Junction and Redlands Boulevard, the eastbound traffic volume counts on SR-60 were collected from the count station located just east of Day Street and the westbound volumes were recorded from traffic count station located just west of Pigeon Pass Road.

TABLE 3: Level of Service (LOS) of HOV, No Build

FREEWAY SEGMENT	LEVEL OF SERVICE			
	EASTBOUND		WESTBOUND	
	AM-PEAK	PM-PEAK	AM-PEAK	PM-PEAK
BETWEEN 60/215 IC AND DAY STREET	F0	F3	F3	F0
BETWEEN DAY ST AND FREDRICK ST	E	F3	F2	E
BETWEEN FREDRICK ST AND HEACOCK AVE	D	F1	F1	D
BETWEEN HEACOCK AVE AND PERRIS BLVD	C	F0	F0	C
BETWEEN PERRIS BLVD AND NASON ST	C	E	D	C
BETWEEN NASON ST AND MORENO BEACH DR	C	D	D	C
BETWEEN MORENO BEACH DR AND REDLANDS BLVD	C	D	D	C

Table Adopted from " High Occupancy Vehicle (HOV) Report For State Route 60 Between East Junction 60/215 and Redlands Boulevard, May 1994.

TABLE 4: SR-60 Peak Hour Volumes and ADT for year 1994 and 2015

CO-ROUTE	PM	PHV		ADT	
		PRESENT	2015	PRESENT	2015
Riv-60	R12.2/13.335	4100	7700	105000	160000
Riv-60	13.335/14.352	4050	7350	101000	152000
Riv-60	14.352/15.366	3150	6200	75000	128000
Riv-60	15.366/15.853	2500	5500	30000	112000
Riv-60	15.853/16.379	1600	4900	39000	98000
Riv-60	16.379/18.368	1450	4650	37800	100000
Riv-60	18.368/20.400	1350	4300	33400	94000

Adopted from the Project Report for HOV lane on Route60 Between East Junction 60/215 and Redlands Boulevard – (R12.2/R20.4 EA: 463600, prepared by Caltrans and approved on 7-11-1994

Table 5: EXISTING (2005) PEAK-HOUR VOLUMES

(Table adopted from Traffic study on proposed HOV conversion, January 2006)

Time	EAST BOUND				WEST BOUND			
	AM Peak-Hour		PM Peak-Hour		AM Peak-Hour		PM Peak-Hour	
	Mixed flow (Vph)	HOV (Vph)	Mixed flow (Vph)	HOV (Vph)	Mixed flow (Vph)	HOV (Vph)	Mixed flow (Vph)	HOV (Vph)
5:00	1508	596			2409	641		
6:00	2049	721			2284	756		
7:00	2258	723			2088	758		
8:00	2265	645			2063	676		
9:00	1939	629			2210	667		
10:00	1647	644			2194	688		
11:00	1857	649			2324	701		
12:00			1907	670			2354	728
13:00			2033	774			2409	840
14:00			2128	916			2487	983
15:00			2470	1107			2641	1169
16:00			2472	1206			2539	1256
17:00			2538	1195			2550	1260
18:00			2268	1032			2153	1101
19:00			2047	760			1520	821

Table 6: PROJECT (2015) PEAK-HOUR VOLUMES*

(Table adopted from Traffic study on proposed HOV conversion, January 2006)

	EAST BOUND				WEST BOUND			
Time	AM Peak-Hour		PM Peak-Hour		AM Peak-Hour		PM Peak-Hour	
	Mixed flow	HOV	Mixed flow	HOV	Mixed flow	HOV	Mixed flow	HOV
	(Vph)	(Vph)	(Vph)	(Vph)	(Vph)	(Vph)	(Vph)	(Vph)
5:00	2201	745			3469	801		
6:00	2977	901			3311	945		
7:00	3270	904			3037	948		
8:00	3268	806			2990	845		
9:00	2809	786			3194	834		
10:00	2402	805			3175	860		
11:00	2697	811			3359	876		
12:00			2770	838			3405	910
13:00			2962	968			3499	1050
14:00			3167	1145			3509	1229
15:00			3624	1384			3873	1461
16:00			3642	1508			3743	1570
17:00			3732	1494			3759	1575
18:00			3330	1290			3179	1376
19:00			2980	950			2251	1026

Project use 4% annually increase per year

Table adopted from Traffic study on proposed HOV conversion, January 2006

TABLE 7: ALL MIXED FLOW LANES LEVEL OF SERVICE (LOS) YEAR 2005

Time	HOV + Mixed Flow Lanes				All Mixed Flow Lane	
	AM Peak-Hour		PM Peak-Hour		Off Peak-Hour	
	EB	WB	EB	WB	EB	WB
5:00	B	C			B	B
6:00	B	C				
7:00	C	B				
8:00	C	B				
9:00	B	B			B	B
10:00	B	B			B	B
11:00	B	C			B	B
12:00			B	C	B	B
13:00			B	C	B	B
14:00			B	C	B	B
15:00			C	C		
16:00			C	C		
17:00			C	C		
18:00			C	B	B	B
19:00			B	B	B	B

Table adopted from Traffic study on proposed HOV conversion, January 2006

TABLE 8: ALL MIXED FLOWLANES LEVEL OF SERVICE (LOS) YEAR 2015

Time	HOV + Mixed Flow Lanes				All Mixed Flow Lane	
	AM Peak-Hour		PM Peak-Hour		Off Peak-Hour	
	EB	WB	EB	WB	EB	WB
5:00	B	D			B	C
6:00	C	D				
7:00	D	C				
8:00	D	C				
9:00	C	D			C	C
10:00	C	D			B	C
11:00	C	D			C	C
12:00			C	D	C	C
13:00			C	D	C	C
14:00			D	D	C	C
15:00			D	E		
16:00			D	D		
17:00			D	D		
18:00			D	D	C	C
19:00			C	B	C	B

Table adopted from Traffic study on proposed HOV conversion, January 2006

7.0 Discussion/Conclusion

Two alternatives have been evaluated in this study to determine whether the conversion of full-time HOV to part-time HOV operation would have environmental and socio-economic benefits by implementing the proposed project. The proposed project aims at improving the flow on mixed flow lanes and maximizing system capacity utilization by the motorist. No build alternative: Full- time HOV Operation (HOV + Mixed Flow Lanes) will not improve operation efficiency of the freeway. The congestion on the mixed flow lanes would remain unchanged and would increase further with time.

Build alternative (conversion of HOV to part-time operation) by utilizing the underused capacity of the HOV lane in off peak hours would help move SOV traffic on mixed flow lanes faster on the freeway and reducing congestion on the existing mixed flow lanes of the facility. In the HOV report (1994) it was determined that the vehicle occupancy rate (persons moved per vehicle) during peak hours are 2.2 as compared to 1.18 to 1.0 for mixed flow lane. It is anticipated that converting the HOV lane to mixed flow lane during off peak hours will result in the highest ratio of persons moved, as more lanes are available to SOVs during off peak period. The reduction in congestion of mixed flow lanes would have beneficial effects on the air quality, and transportation system operation efficiency. Studies have shown that diesel trucks produce less hazardous air contaminants (HAC) with increased running speed. But it was not been determined if diesel particulate matter are reduced substantially to what extent or is not effected by increased speed. The Emissions analysis (See Table 1) performed by SCAG shows no significant difference in emissions on both alternatives, as the volumes of traffic and VMT remain unchanged. The build alternative or replacement TCM (Converting HOV lane to part-time operation) would have lesser or equal emissions as compared to the emissions from the existing TCM (full-time HOV operation). This becomes obvious when considering the fact that the increase in speed of vehicles (as shown in other independent environmental studies) produces lesser pollutants in vehicles exhaust emissions. Thus it could be safely assumed that in build alternative, the mixed flow lanes during off peak period is anticipated to generate lesser pollutants than the same volume of traffic would produce from the existing condition (No Build) during peak hours congested condition. The predicted LOS in general as analyzed in the recent traffic study report (See Tables 7 & 8) shows an improvement from "C" to "B" for build alternative. The improvement in level of service (LOS) would offer more flexibility and convenience to motorists and at the same time enhance safety on the segment of the freeway by reducing the vehicles density per lane. The reduced vehicles density may contribute to lesser incidence of accidents. The improved traffic flow resulting from reduced congestion would increase the mobility of the corridor. It is concluded that build alternative (Replacement TCM) would not violate NAAQS or worsen existing violations or timely implementation of the National Ambient Air quality Standards NAAQS as discussed in the section 4.0 and 4.2 of this study.

APPENDIX 'A'

Route 60 Proposed Cross-Section Showing Existing facility with Addition of Auxiliary Lane on Segment of SR 60 Between Nason Street Interchange and Moreno Beach Drive In the City of Moreno Valley, California EA 08-323010

APPENDIX A

Traffic Study Report

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TRAFFIC STUDY TO CONVERT FULL-TIME HOV OPERATION TO PART-TIME ON STATE ROUTE 60

From PM R12.2-R20.4
In Riverside County

JANUARY 2006

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I. OBJECTIVE

This study examines the traffic operational characteristics of both the High Occupancy Vehicle (HOV) and mixed-flow lanes on an eight-mile segment of State Route 60 (SR-60) in Riverside County from the East Junction of SR-60/I-215 to Redlands Boulevard. The Study focuses on evaluating the benefits of converting the full-time HOV lane to part-time in terms of improving the operation of the corridor during the off peak periods.

II. BACKGROUND

A. Purposes of HOV Facilities

The development of HOV lanes as a strategy to help solve transportation problems in metropolitan areas throughout California has steadily increased over the last two decades. In general, HOV lanes have been constructed for the following two reasons:

1. Operational Improvements: e.g., reducing traffic delays and increasing the movement of people.

2. Social and Environmental Benefits: e.g., improving air quality and conserving fuel.

Both of these goals are achieved by increasing the people moving capacity of the freeway through ridesharing. Since HOV facilities typically operate during peak hours and with greater consistency than the mixed-flow lanes, they encourage individuals to rideshare or use mass transportation. Conceptually, this shift in modes of transportation will reduce the overall traffic demand on the facility and thereby, provide operational improvements with social and environmental benefits.

In establishing the hours of operation policy for an HOV facility, it is essential to consider the unique characteristics and benefits of the facility.

The volume of traffic on this portion of State Route 60 has steadily increased over the years as population has increased along the corridor. When State Route 60 was originally built between the proposed project limits in the early 1960's, the Moreno Valley area (formerly known as Sunnymead) was a rural community.

Today, the traffic volume exceeds the capacity of the freeway (during peak hours) due primarily to the population growth in Moreno Valley, stimulated by the availability of economical housing. Furthermore, Route 60 throughout the

proposed project limits has seen changes in land-use with the addition of a number of new commercial developments. The addition of Moreno Valley's Towngate Mall and several "Big Box" retail centers has increased the number of local trips, which in turn has increased freeway volumes during off-peak periods and weekends.

B. Existing Facility

The existing configuration of State Route 60 within the project limits consists of two 12-foot mixed-flow lanes and a 12-foot HOV lane in each direction. The two directions of traffic are separated by a Type 60 concrete median barrier with a 1 foot wide striped buffer between the HOV and mixed-flow lanes. The inside and outside shoulder are 11 and 8 feet wide respectively.

The HOV lane on Route 60 was opened to traffic in March 2004 as a "full-time" HOV lane. This section of the highway is approximately eight miles long and begins at the East Junction State Route 60/I-215 to Redlands Boulevard in Riverside County. The speed limit through this segment is 65 MPH.

A map depicting existing and planned HOV lanes for District 08 along with the proposed project limits is displayed in Attachment 1.

C. Funding

The existing HOV lanes were installed as part of a locally funded project (EA46360), with the following funding sources:
Congestion Mitigation Air Quality (CMAQ) …….$31,679
Local Riverside County Measure A…….$4,104

D. System Planning

The Route Concept Report for this segment of SR-60 shows 4 mixed-flow lanes with 2 HOV lanes. This segment of the facility is built to its ultimate configuration. There are no major lane additions planned for this segment of freeway.

III. HOURS OF OPERATION POLICY

A. Impact of the Policy

The California Department of Transportation's *High Occupancy Vehicle (HOV) Guideline for Planning, Design, and Operations* states that "If future carpool lanes are to be built, whether 24-hours or peak periods only, the operating hours of a HOV facility should be consistent throughout the region." This is important to reduce motorist confusion and to allow a system-wide network of HOV facilities to function together

B. Policy Descriptions

There are only two basic hours of operation policies: "full-time" and "peak period only". Both policies are currently being used in California. A "full-time" HOV policy (also referred to as a "24-hour" policy) allows eligible high occupancy vehicles exclusively to use the HOV lane at all times (24 hours per day, 7 days per week). In general, this policy is appropriate for areas that have long periods of congestion, extended peak periods of traffic and dispersed activity centers such as in Los Angeles. Since the HOV lane is never open to mixed-flow traffic, often, these facilities are separated from the mixed-flow lanes by a buffer or physical barrier.

The "peak period only" policy provides for preferential treatment of HOV's only during the limited periods of peak demand which occur during the morning and evening commute hours. The HOV lane is opened to all traffic and operates as an additional mixed-flow lane outside of the peak traffic period and weekends.

The specific hours of operation for a "peak period only" facility should be based on the traffic patterns of the route, anticipated future demands and regional HOV plans to maximize the overall usefulness of the HOV lane. If the traffic is heavy in only one direction, then it may be appropriate to operate the lane as HOV in a single direction. If both directions have heavy volumes, then both HOV lanes should be operated simultaneously.

C. Existing Hours of Operation Policy

The HOV facility on State Route 60 currently operates on a "full-time" basis. This policy was adopted before the facility opened for the following reasons:

- A "full-time" policy would create less motorist confusion.
- Enforcement might be easier
- Ridesharing would be encouraged at all times of the day.

D. Criteria for Determining the Hours of Operation Policy

The hours of operation policy for a HOV facility is a complex issue, and can be highly political in nature. Although there are many "generic" arguments for both policies, it is essential to consider the actual traffic characteristics of the specific facility and region under consideration before establishing an hours of operation policy. Moreover, since the difference between the "peak period only" and the "full-time" policies determine whether the HOV lane restrictions should operate during the off-peak hours, the analysis should primarily focus on the off-peak period characteristics.

To determine which policy would be most effective for Route 60 and the surrounding area, the study evaluated the following issues:

1. Use of the HOV Facility (Current and Future)

Although it is difficult to define quantitatively when an HOV lane is being adequately used, traffic volumes can be analyzed to establish the overall demand for the facility. By comparing the lane volumes and level of service during the peak and off-peak periods, one can gain insight into how the HOV lane performs. If the HOV lane is underutilized while the adjacent mixed-flow lanes are operating with significantly higher volumes during off-peak hours. A "part-time" HOV facility is justified.

2. Duration of Peak Period and Congestion Periods

The traffic characteristics of the route under consideration must be evaluated to determine the length of the peak periods and congestion periods. If high traffic volumes and congestion occur for extended periods of time, then a "full-time" operation would probably serve the facility best. However, if high volumes of traffic and congestion are isolated to limited periods of time, then a "peak period only" policy is recommended for a particular facility, then the specific hours of operation should be based on the time limits of the peak periods and congestion periods.

3. Incentive for Off Peak Ridesharing

Since the primary benefits of an HOV facility are directly related to its ability to promote ridesharing, it is important to consider whether or not this is occurring during off-peak hours. A public opinion survey attempts to directly measure the ridesharing incentive of an HOV facility. Unfortunately, this method is labor intensive and is not always feasible.

Another method for assessing the amount of incentive to rideshare provided by an HOV facility is to determine the relative interest of existing carpools to use the HOV lane throughout the week. By analyzing how many of the HOV's, which are already present on the mainline, are choosing to use the HOV lane rather than an mixed-flow lane, one can gage the relative attractiveness of the HOV facility during different traffic conditions. It is reasonable to infer that the degree to which the HOV lane attracts existing HOV's during the peak and off-peak periods should strongly correlate to the facility's ability to promote ridesharing at these different time periods.

4. Safety

An analysis of the location, time of day and types of accidents occurring on SR-60 will have to be assessed to determine how converting the HOV lane from "full-

time" operation to "part-time" might affect the overall safety of the facility. It is expected that the overall densities in the mixed-flow lanes will be reduced due to the migration of some of single occupancy vehicles to the HOV lane. The reduced traffic volumes in the mixed-flow lane will increase the headway between vehicles and may result in improving safety during the off-peak periods. This view is supported by an ITS report entitled `Design of Bus and Carpool Facilities: A Technical Investigation which found that opening HOV lanes to mixed-flow traffic during off-peak periods and weekends can reduce accident rates.

5. Other Benefits

The overall operation of this corridor may also be improved by the part-time operation when non-recurrent congestion occurs during the off-peak periods due to an incident or construction/maintenance activity. With part-time HOV operation, single occupant vehicles will be able to freely use the HOV lane during such events. This will result in reduction of overall delay on the system due to incidents or construction/maintenance activities. This option is not available under "full-time " operation scenario unless significant amount of resources are deployed for portable changeable message signs, Traffic Management Teams, public information campaigns etc. to inform motorists that the HOV lane is available to use. The part-time HOV lane operation will also reduce the number of complaints from motorists about the underutilization of HOV lane and not able to use it especially during incidents and construction closures.

IV PROJECT PROPOSAL

Currently there are two mixed-flow lanes and one full-time HOV lane in each direction on this segment of SR-60. The HOV lane is separated from the #1 mixed-flow lane by a one foot striped buffer with two designated ingress/egress locations in each direction. It is proposed to convert the full-time HOV operation to part-time. The hours of HOV operation will be from 6 A.M. to 9 A.M. and 3 P.M. to 6 P.M. in both directions of SR-60. The HOV lane will be open to use by single occupant vehicles (SOV) for the remaining hours of the day. A striped buffer between the HOV lane and the mixed-flow lanes will remain unchanged, and no striping modifications are proposed. The SOVs will be able to enter/exit the HOV lanes only at the existing designated ingress and egress locations. New signs will be installed informing motorists about the hours of HOV operation. An aggressive public awareness campaign will be launched to spread the word about the proposed change in operation. Furthermore, when additional HOV lanes are constructed on adjacent routes in the area, the hours of operation on this corridor will have to revisited to provide for the most effective operation for the region.

V. Traffic Analysis

A. Traffic Data

To assess the benefits of implementing this proposal, traffic volumes were collected from count stations on SR-60 eastbound located just east of Day Street and westbound volumes were collected just west of Pigeon Pass Road. The volumes analyzed were by direction and split between the HOV and mixed-flow lanes. Truck traffic was assumed to be 10%.

A close examination of the existing traffic counts indicate that the traffic volumes in the westbound direction remained consistently above 2000 vph in the mixed-flow lanes from 5 A.M. to 6 P.M. The traffic volume ranged from a low of 2063 vph between 8 A.M. to 9 A.M. to a high of 2641 vph between 3 P.M. to 4 P.M. In the Eastbound direction, a spike in traffic volumes was observed from 7 A.M. to 9 A.M. during the A.M. peak period and again from 3 P.M. to 6 P.M. during the P.M. peak period, with the peak hour occurring between 5 P.M. and 6 P.M.

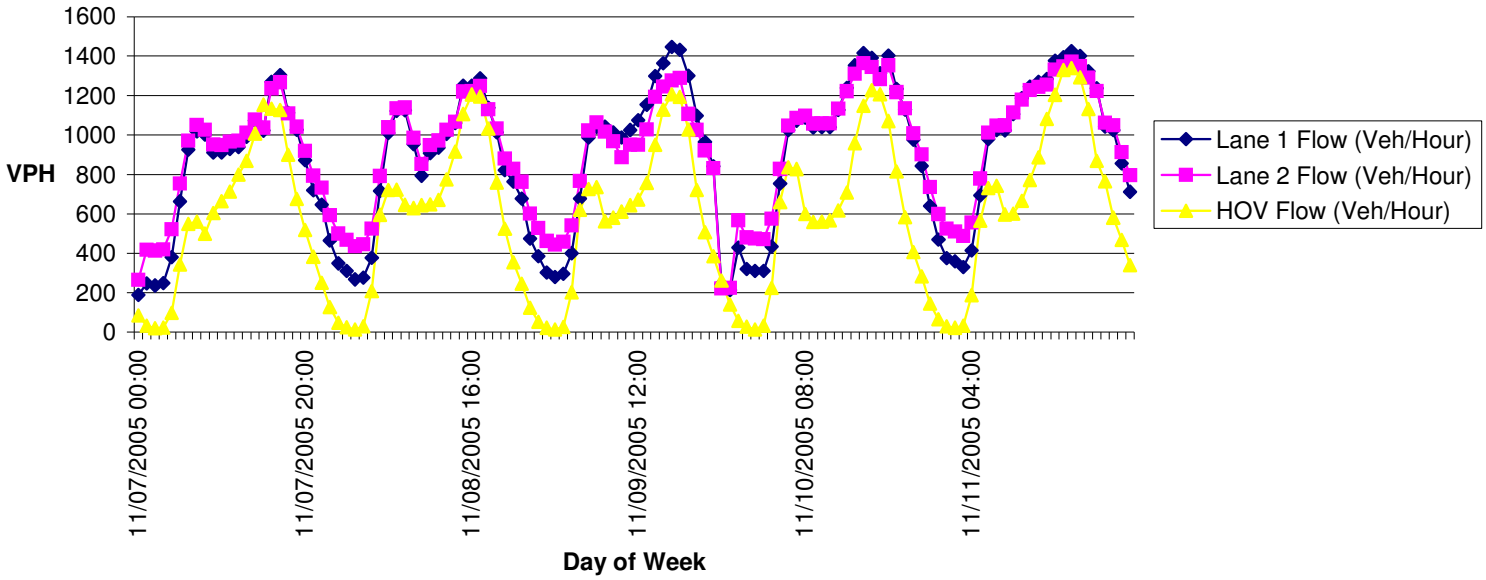
For the HOV lanes, both directions of SR-60 has a distinct peak period from 2 P.M. to 6 PM, with the highest hour in the eastbound direction from 4 P.M. to 5 P.M. and in the westbound direction from 5 P.M. to 6 P.M. During the off-peak periods, the traffic volume in the HOV lane was found to range from 40% to 50% less than during the peak periods indicative of underutilization of the lane. The existing traffic data from 5 A.M. to 7 P.M. split by direction and separated into mixed-flow lane and HOV lane volumes is shown in Table 1. Table 2 shows the projected traffic volumes of mixed-flow and HOV lane for the year 2015. A graph showing the variation of westbound and eastbound traffic volumes by hour of the day separated into HOV and mixed-flow volumes for the year 2005 and 2015 are shown in Figures 1-4.

The traffic volumes were observed for an entire workweek (Monday through Friday) and the same kinds of traffic patterns were found to repeat every day indicative of predictable travel on this corridor. A graph showing how traffic volumes varied by day of the week is shown in Figure 5.

B. Level of Service Analysis

A level of service (LOS) analysis was performed to find out how the mixed-flow and HOV lanes will operate if this proposal was to be implemented. The analysis used the Highway Capacity Software (HCS) for each hour from 5 A.M. to 7 P.M. in both directions. The purpose of the analysis was to see whether there was a significant benefit in system performance of this corridor. The analysis was

Figure 5
SR-60 Weekday Volumes Eastbound



performed for existing and proposed conditions for the existing traffic volumes and future projected traffic volumes for the year 2015. A peak hour factor (PHF) of 0.92 was used for the analysis and the terrain was considered level. The following alternatives were considered in this analysis:

Alternative 1: Full-time HOV operation under existing conditions: The traffic analysis for this alternative indicated that the LOS ranged between B and C during the A.M. peak period in both directions, while it was C during the P.M. peak period. During the off-peak period, it ranged between A at 5 A.M. and C at noontime in both directions.

Alternative 2: Full-time HOV operation under 2015 future projected conditions: For this Alternative, the LOS deteriorated to between C and D during the A.M. peak period for most part and between D and E during the P.M. peak period in both directions. The LOS during the off-peak period also got worse from B and C to C and D.

Alternative 3 Part-time HOV operation under existing conditions: For this Alternative, LOS was performed for hours outside of the peak periods of 6:00 A.M. to 9:00 A.M. and 3:00 P.M. and 6:00 P.M. During those hours, it is proposed that facility will operate with HOV lane. The LOS under this alternative improved from C to B, for the majority of hourly counts, between 9:00 A.M. and 2:00 P.M. Usage of the HOV lane during off-peak hours under part-time HOV operation is expected to increase to the same level as the mixed-flow lanes, which will be at a significantly higher level than it would be under full-time HOV operation.

Alternative 4 Part-time HOV operation under 2015 future projected conditions: For this Alternative, the LOS was also performed for hours outside of the peak periods of 6:00 A.M. to 9:00 A.M. and 3:00 P.M. to 6:00 P.M. The analysis indicated that the LOS improved from D to C and C to B, indicative of reduced delay and improved utilization of all lanes, especially during the hours of 9:00 A.M. and 2:00 P.M.

The results of the LOS analysis for all the four alternatives are presented in Table 3 and 4 on page 11 of this study.

C. Ridesharing

One of the expected benefits of an HOV facility is that it encourages carpooling that helps reduce overall congestion on the entire system. The usage of HOV lanes are in large part dependent on the amount of congestion on the mainline. It is unlikely that motorists will opt to rideshare unless there is a measurable time savings. Typically most of the ridesharing occurs during the morning peak periods. Implementing part-time HOV operations is not expected to reduce the ridesharing opportunities available to motorists. There are two Park and Ride Lots within the limits of this corridor. The usage for the Park and Ride lot located at Moreno Valley Mall was 66% with 49 of the 74 parking spaces in use, while the usage for the Park and Ride Lot located at Pigeon Pass Road was 29% with 58 of the 200 park spaces in use. This data was from the Park and Ride Survey completed by the Department in February, 2005.

VI ENVIRONMENTAL ISSUES

The project to add one HOV lane in each direction (EA 46360) was cleared under NEPA and CEQA with a Categorical Exemption/Categorical Exclusion (CE/CE). This project is located in the South Coast Air Basin (SCAB), which is in non-attainment for Carbon Monoxide (CO), Particulate matter (PM10) and Ozone. Therefore, if the original HOV project was identified as a Transportation Control Measure (TCM) in an approved State Implementation Plan (SIP), then a SIP revision to convert the full-time HOV lanes to part-time use may need to be prepared and then submitted to the Environmental Protection Agency (EPA) for their approval.

The original Riv-60 HOV project was identified as a TCM and listed individually in SCAG's prior 2001 and 2002 Regional Transportation Improvement Programs (RTIP's). FHWA/FTA approval of SCAG's conformity determination for their current 2004 Regional Transportation Plan (RTP) was dated June 7, 2004. FHWA/FTA approval of SCAG's conformity determination for their current 2004 Regional Transportation Improvement Program (RTIP) was dated October 4, 2004.

VII RECOMMENDATIONS

The traffic analysis performed in this Study clearly indicated a significant benefit in terms of system performance of this corridor if part-time HOV operation is implemented. It is recommended that the approval be granted for part-time HOV operation of this corridor for a period of three years beginning July 1, 2006. By that time, the HOV lanes on adjoining segment of I-215 should be operational. A follow-on study will then need to be performed to assess which permanent HOV strategy will be most beneficial. The justifications for asking for this change are as follows:

- The HOV lanes are not being adequately used during off-peak periods as observed by the low volume of traffic and people moved on the facility. As a result, the HOV lanes on Route 60 are likely to be perceived by the public as underutilized which may threaten the support for future HOV projects in the area.

- The periods of high volumes and congestion cover a consistent time frame. Outside of this time frame, the HOV lanes are not functioning efficiently. The surplus capacity in the HOV lane is made available to SOVs for better utilization of all lanes on this corridor.

- The HOV facility offers no appreciable incentive for ridesharing during the off-peak periods due to the lack of congestion. Without a significant ridesharing incentive, the basic operational, social and environmental objectives for the facility are not met.

- Opening the HOV lane to mixed-flow traffic during off-peak hours may improve the overall safety of the route by lowering the overall traffic densities, increasing head-ways and making the HOV lane readily available to mixed-flow traffic during lane closures and incidents.

VIII ATTACHMENTS

1) HOV Conversion Project Limits Map
2) Data Collection Point Map
3) SCAG Tip Funding Report
4) Category Exemption Environmental Document
5) Original HOV Report
6) Existing SR-60 Cross Section
7) Level of Service Calculation Worksheets

APPENDIX 'B'

AIR QUALITY MONITORING DATA

Highest 4 Daily PM2.5 Measurements
Riverside-Magnolia

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 9	73.3	Mar 19	93.8	Oct 22	94.9
Second High:	Mar 13	59.5	Mar 22	67.1	Nov 6	49.1
Third High:	Sep 30	56.2	Apr 9	53.7	Nov 12	41.0
Fourth High:	Oct 27	55.5	Jul 5	51.0	Mar 11	39.4
California:						
First High:	Oct 9	73.3	Mar 19	93.8	Oct 22	94.9
Second High:	Mar 13	59.5	Mar 22	67.1	Nov 6	49.1
Third High:	Sep 30	56.2	Apr 9	53.7	Nov 12	41.0
Fourth High:	Oct 27	55.5	Jul 5	51.0	Mar 11	39.4
# Days Above Nat'l Standard:		1		2		1
3-Year Average 98th Percentile:		62		58		*
1-Year 98th Percentile:		56.2		53.7		*
National 3-Year Average:		25		23		20
National Annual Average:		22.6		20.8		18.0
State 3-Yr Maximum Average:		23		23		23
State Annual Average:		22.6		*		*

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.

State exceedances are shown in yellow . National exceedances are shown in orange .

An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

3-Year statistics represent the listed year and the 2 years before the listed year.

* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Highest 4 Daily PM2.5 Measurements
Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 26	104.3	Mar 19	91.7	Oct 22	98.7
Second High:	Oct 29	89.2	Jul 5	77.1	Oct 23	95.9
Third High:	Oct 7	86.9	Mar 21	74.5	Oct 21	82.1
Fourth High:	Oct 8	79.1	Mar 20	73.6	Jul 5	79.8
California:						
First High:	Oct 26	104.3	Mar 19	91.7	Oct 22	98.7
Second High:	Oct 29	89.2	Jul 5	77.1	Oct 23	95.9
Third High:	Oct 7	86.9	Mar 21	74.5	Oct 21	82.1
Fourth High:	Oct 8	79.1	Mar 20	73.6	Jul 5	79.8

# Days Above Nat'l Standard:	8	5	4
3-Year Average 98th Percentile:	72	67	65
1-Year 98th Percentile:	76.6	59.5	58.3
National 3-Year Average:	27	24	22
National Annual Average:	24.8	22.1	21.0
State 3-Yr Maximum Average:	25	25	25
State Annual Average:	24.8	*	21.0

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.

State exceedances are shown in yellow . National exceedances are shown in orange .

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State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

3-Year statistics represent the listed year and the 2 years before the listed year.

* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Highest 4 Daily PM2.5 Measurements
Palm Springs-Fire Station

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 6	21.2	Jul 5	27.1	Oct 22	26.1
Second High:	Jul 26	20.5	Oct 24	25.5	Dec 18	25.0
Third High:	Nov 8	20.0	Jan 19	23.3	Jan 22	23.1
Fourth High:	Jul 8	19.6	Dec 8	20.6	Jan 7	22.2
California:						
First High:	Oct 6	21.2	Jul 5	27.1	Oct 22	26.1
Second High:	Jul 26	20.5	Oct 24	25.5	Dec 18	25.0
Third High:	Nov 8	20.0	Jan 19	23.3	Jan 22	23.1
Fourth High:	Jul 8	19.6	Dec 8	20.6	Jan 7	22.2
# Days Above Nat'l Standard:		0		0		0
3-Year Average 98th Percentile:		25		22		*
1-Year 98th Percentile:		20.0		23.3		*
National 3-Year Average:		9		9		*
National Annual Average:		9.0		8.9		*
State 3-Yr Maximum Average:		10		10		9
State Annual Average:		*		8.8		*

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.

State exceedances are shown in yellow . National exceedances are shown in orange .

An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

3-Year statistics represent the listed year and the 2 years before the listed year.

* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM10 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Highest 4 Daily PM10 Measurements
Riverside-Rubidoux

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Oct 27	164.0	Mar 19	137.0	Oct 22	123.0
Second High:	Jul 5	159.0	Jul 5	131.0	Nov 30	98.0
Third High:	Oct 9	134.0	Oct 6	122.0	Apr 16	96.0
Fourth High:	Oct 24	133.0	Mar 22	119.0	Oct 7	92.0
California:						
First High:	Oct 27	159.0	Mar 19	133.0	Oct 22	119.0
Second High:	Jul 5	154.0	Jul 5	127.0	Nov 30	95.0
Third High:	Oct 9	129.0	Oct 6	118.0	Apr 16	93.0
Fourth High:	Oct 24	129.0	Mar 22	115.0	Oct 7	89.0
Measured:						
# Days Above Nat'l Standard:		2		0		0
# Days Above State Standard:		59		70		67
Estimated:						
3-Yr Avg # Days Above Nat'l Std:		2.0		2.0		2.0
# Days Above Nat'l Standard:		6.2		0.0		0.0
# Days Above State Standard:		201.4		210.1		198.2
National 3-Year Average:		59		56		54
National Annual Average:		55.6		54.8		51.8
State 3-Yr Maximum Average:		56		56		55
State Annual Average:		55.1		53.5		50.4
Year Coverage:		100		100		100

Notes: All concentrations are expressed in micrograms per cubic meter.

State exceedances are shown in yellow . National exceedances are shown in orange .

An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on *local* conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on *local* conditions). National statistics are based on *standard* conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.

* There was insufficient (or no) data available to determine the value.

Switch: Hourly Ozone | 8-Hour Ozone | PM2.5 | Carbon Monoxide | Nitrogen Dioxide | Sulfur Dioxide | Hydrogen Sulfide

Highest 4 Daily PM10 Measurements
Perris

FAQs

Year:	2003		2004		2005	
	Date	Measurement	Date	Measurement	Date	Measurement
National:						
First High:	Feb 2	142.0	Jun 26	83.0	Oct 7	80.0
Second High:	Jul 8	116.0	May 15	79.0	Sep 19	70.0
Third High:	Oct 24	116.0	Oct 6	72.0	Nov 6	69.0
Fourth High:	Jul 14	80.0	Mar 22	69.0	Sep 1	66.0
California:						
First High:	Feb 2	135.0	Jun 26	79.0	Oct 7	75.0
Second High:	Oct 24	111.0	May 15	75.0	Sep 19	66.0
Third High:	Jul 8	110.0	Oct 6	69.0	Nov 6	66.0
Fourth High:	Jul 14	76.0	Mar 22	66.0	Sep 1	63.0
Measured:						
# Days Above Nat'l Standard:		0		0		0
# Days Above State Standard:		17		15		18

Estimated:			
3-Yr Avg # Days Above Nat'l Std:	0.0	0.0	0.0
# Days Above Nat'l Standard:	0.0	0.0	0.0
# Days Above State Standard:	*	*	110.1
National 3-Year Average:	43	43	41
National Annual Average:	43.9	41.4	39.1
State 3-Yr Maximum Average:	43	43	37
State Annual Average:	*	*	37.1
Year Coverage:	88	97	99

Go Backward One Year | New Top 4 Summary | Go Forward One Year

Notes: All concentrations are expressed in micrograms per cubic meter.

State exceedances are shown in yellow . National exceedances are shown in orange .

An exceedance is not necessarily a violation.

State and national statistics may differ for the following reasons:

State statistics are based on California approved samplers, whereas national statistics are based on samplers using federal reference or equivalent methods. State and national statistics may therefore be based on different samplers.

State statistics for 1998 and later are based on *local* conditions (except for sites in the South Coast Air Basin, where State statistics for 2002 and later are based on *local* conditions). National statistics are based on *standard* conditions.

State criteria for ensuring that data are sufficiently complete for calculating valid annual averages are more stringent than the national criteria.

Measurements are usually collected every six days. Measured days counts the days that a measurement was greater than the level of the standard; Estimated days mathematically estimates how many days concentrations would have been greater than the level of the standard had each day been monitored.

3-Year statistics represent the listed year and the 2 years before the listed year.

Year Coverage indicates how complete monitoring was during the time of the year when concentrations are highest. 0 means there was no coverage; 100 means there was complete coverage.

* There was insufficient (or no) data available to determine the value.

Riverside County Transportation Commission

Riverside County Regional Complex
4080 Lemon Street, 3rd Floor • Riverside, California
Mailing Address: Post Office Box 12008 • Riverside, California 92502-2208
Phone (951) 787-7141 • Fax (951) 787-7920 • www.rctc.org

November 14, 2006

Jonathan Nadler
Planning and Policy Department
Environmental Planning Division
Southern California Association of Governments
818 West Seventh Street, 12th Floor
Los Angeles, California 90017

Re: November 28, 2006 TCWG RIV061101 Calimesa Pedestrian Walkway TCM Designation Discussion Agenda Item Addition Request

As part of Amendment 02 to the 2006 Regional Transportation Improvement Program (RTIP), a new project for the City of Calimesa has been submitted. The project will construct approximately 1,773 linear feet of new sidewalks in Calimesa on Third St between County Line Rd and Avenue L.

RCTC is requesting this project be added to the November 28th TCWG agenda to evaluate whether or not it should be designated as a TCM.

The programmed code assigned to the project is a "NCN27" which is described as "Pedestrian Facilities – New" per page 64 of the 2006 RTIP Guidelines. In the TCM section of the 2006 RTIP Guidelines (pages 33-36), the guidance indicates that projects with a NCN27 program code should be designated as a Transportation Control Measure (TCM).

The basic definition of a TCM as stated in the RTIP Guidelines on page 33 in Section IV, Part A provides the following:

"Transportation Control Measure (TCMs) are specific transportation projects and programs committed to help improve air quality. TCMs are required by the federal Clean Air Act in nonattainment areas that are classified as "severe" and above (§7511a(d)(1)), and provide multiple benefits, including reductions of emissions and improvements to mobility and accessibility and can help support better urban form."

Section IV, Part B provides a further definition for a TCM and states:

"A TCM-type project or program is any transportation project or program that reduces vehicle use or changes traffic or congestion conditions for the purposes of reducing emissions from transportation sources and improving air quality."

The primary purpose of Calimesa Pedestrian Walkway project as programmed in RIV061101 intends to eliminate an operational safety hazard for school children who tend to walk on the street rather than on the non paved area in the project limits. When inclement weather occurs, children will walk on the paved street rather than through the mud. Walking on the paved street further increases safety issues for the school children traversing the area.

Based on a review of the City of Calimesa's project for inclusion in the RTIP, the project has been programmed and submitted as a regular exempt, non TCM project. However, this appears to conflict with the RTIP Guidelines based on the definition for a TCM. Therefore, RCTC is requesting clarification of the below areas to determine how this project meets the definition of a TCM to complete required RTIP programming actions:

1. Is Third St in Calimesa included in the modeling network and what direct emission benefits would result from this project?
2. How would the emission benefits be quantified and calculated?
3. In the unlikely event the project was delayed or dropped, what appropriate methodology could be used to find a suitable substitute?

Please direct any questions concerning this request to Ken Lobeck, at 951.787-7141 or via email at klobeck@rctc.org.

Thank you,

Kenneth F. Lobeck
Staff Analyst

Attachments:
1. RIV061101 TIP sheet
2. Project Location Map
3. Project Location Views

System L
Lead Agency CALIMESA

Route 0
Source/FTIP 06FTIP
Amend # 2

Post Mile 0.00
Env. Doc. CE 03/30/07
Basin SCAB

to 0.00
TCM N
Model #

Element 1
County RIVERSIDE
Change Reason NEW PRJ

Program NCN27
Description:
Completion Date 12/30/07

Yr Added 2006

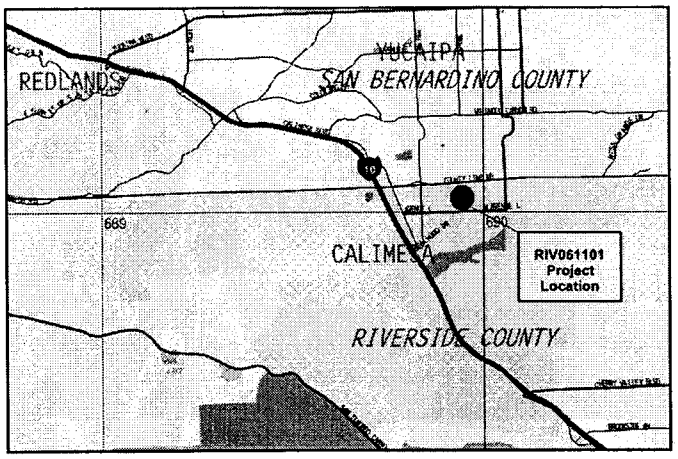
CALIMESA SCHOOL PEDESTRIAN WALKWAY SEGMENT 1: ON 3RD ST FROM COUNTY LINE RD TO AVE L (SIDEWALKS, HANDICAP RAMPS AT CORNERS, UNDERGROUNDING UTILITIES, BOX CULVERT WIDENING)

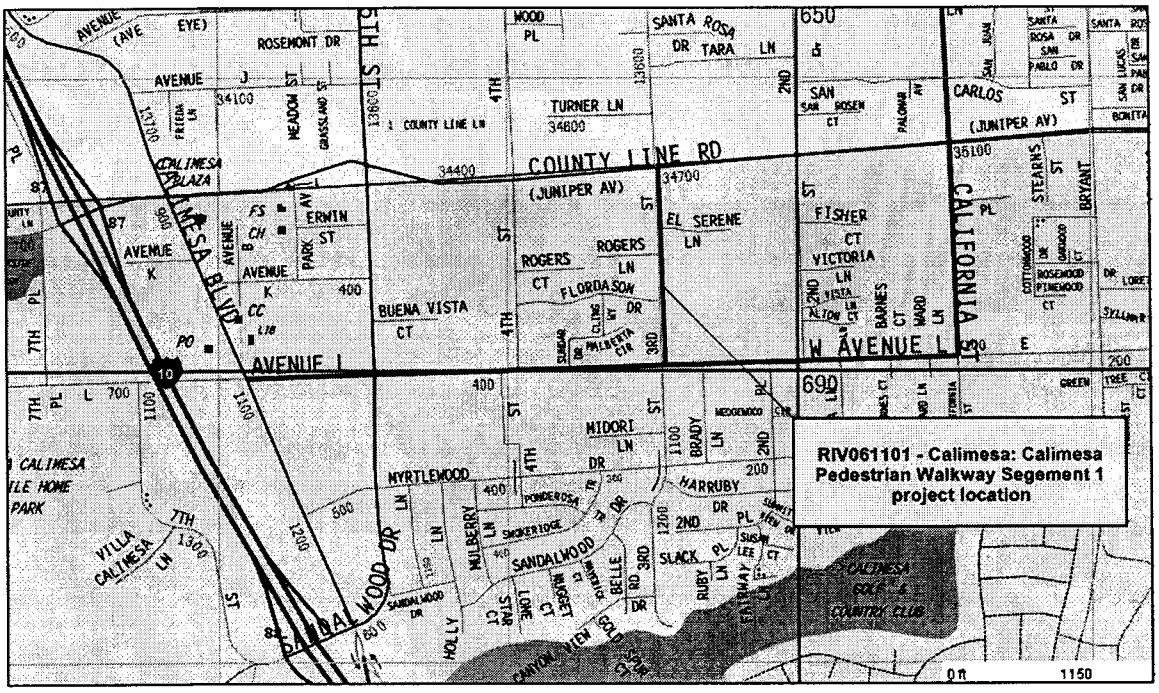
Fund Name	YEAR	Eng. Cost	R/W Cost	Cons. Cost	Fund Total	
FEDERAL MISC						
TCSPPP	2006/2007			871	$871	
					$871	Subtotal
LOCAL						
CITY	2006/2007			218	$218	
					$218	Subtotal
		$0	**$0**	**$1,089**		

(Funds are in thousands of dollars) **Total Cost:** **$1,089**

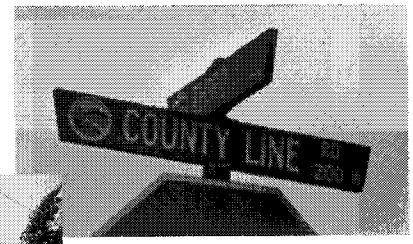
Comments: 06 Amend 02: Added to RTIP. Improvements approx 1,773 linear feet

RIV061101
Lead Agency: City of Calimesa
Project: Calimesa Pedestrian Walkway Segment 1
Project Location Map



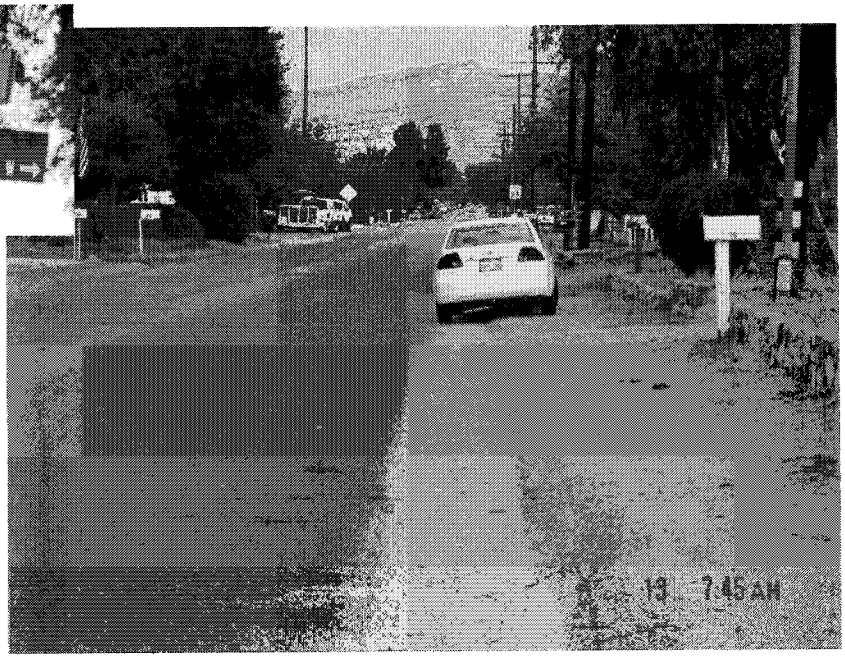


RIV061101
Lead Agency: City of Calimesa
School Pedestrian Walkway Segment 1:
On Third St from County Line Rd to Avenue L



View of Third St looking south from the County Line Rd/Third St intersection.

Third St is a residential road in the City of Calimesa.



View of Third St looking north near the Avenue L/Third St intersection